THE BUILDER

VOL. C.—No. 3566. JUNE 9, 1911.

CONTENTS.

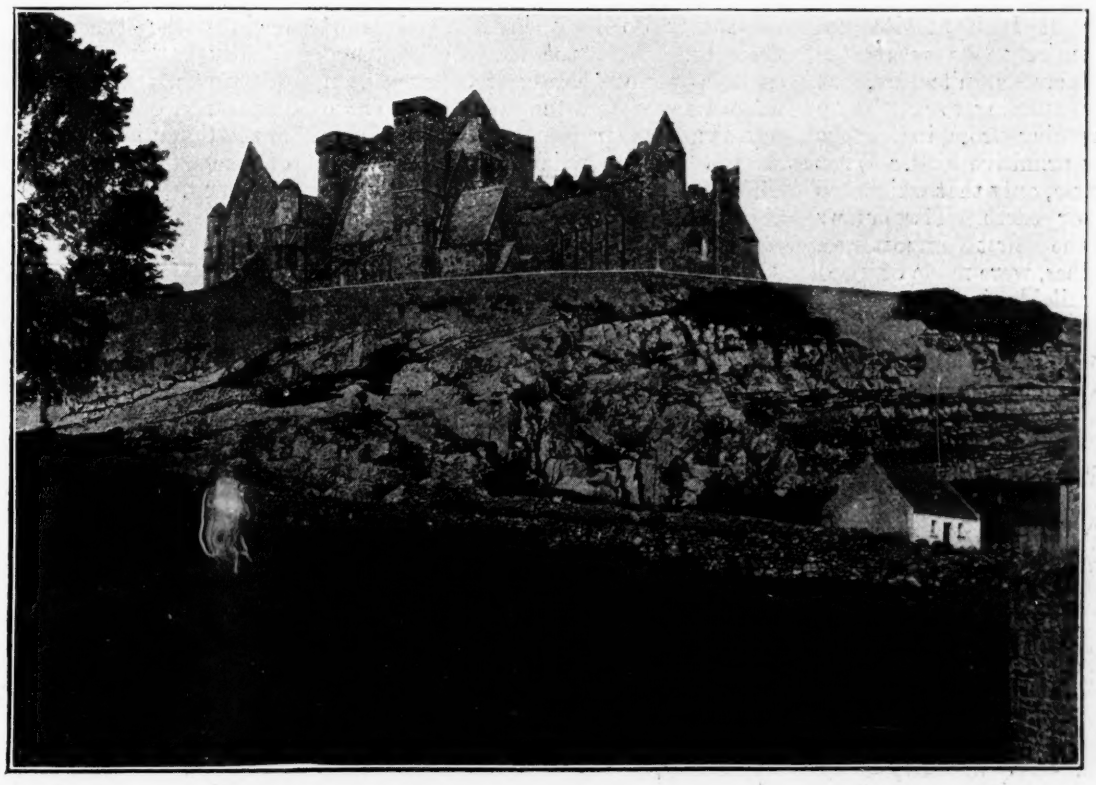
	PAGE
Irish Architecture (with Illustrations)	703
Notes	706
The Victor Emmanuel Monument, Rome (with Illustrations)	706
Competition News	709
Gidea Park House and Cottage Competition, Romford (with Illustrations)	709
General News	712
Correspondence	713
Legal Column	715
Law Reports	715
Editorial Summary	716
Meetings	716
Fifty Years Ago	716
London Councils	716
Notes to Illustrations	716
Monthly Review of Construction :—	
School at Seaton Sluice, Northumberland (with Illustrations)	717
Monthly Review of Construction *(continued)* :—	
The Need for Horizontal Tie-Rods in Arched Timber Roofs (with Illustrations)	718
Unusual Retaining Wall in Lombard-street (with Illustrations)	719
The Flat Slab System of Reinforced Concrete (with Illustrations)	720
New Hospital for the Malverns (with Illustrations)	721
Notes (with Illustrations)	721
The Building Trade :—	
The National Insurance Bill	723
Building Trade Exhibits at the Glasgow Exhibition	723
Metal Ladder Tape Lathing for Partitions (with Illustration)	724
Mediæval Carpentry (with Illustration)	724
New Form of Account Book for Contractors	724
General Building News	725
Projected New Buildings in the Provinces	725
Cottage Homes (with Illustrations)	726
The Royal Sanitary Institute	727
Some Buildings of Paris (with Illustrations)	728
Trade Catalogues	729
List of Competitions, Contracts, etc., Open	730
Patents	732
Some Recent Sales	732
Prices Current	733
Tenders	734

Illustrations.

Monument to Victor Emmanuel, Rome.

Gorse Hill, near Woking. Mr. Edward P. Warren, F.R.I.B.A., Architect.

Deep Sea Fishermen's Institute, Newlyn, Cornwall. Mr. Edward P. Warren, F.R.I.B.A., Architect.



The Rock of Cashel : Cormac's Chapel, Cathedral, and Round Tower.
(From "Irish Ecclesiastical Architecture." Messrs. Bell & Sons.)

IRISH ARCHITECTURE.*

PROBABLY the architecture of Ireland is of as little avail, to those who look to see in the efforts of the past precepts for practice to-day, as any building which comes within the scope of the term. Doubtless a sufficiently earnest or nimble wit might discover in its examples many of those great and vague lessons which are to be discerned, by one so intending, in the humblest hut as in the mightiest temple. But to all intents and purposes the study of Irish architecture must be without any view to practical application, and one may engage in it happily untrammelled by any ulterior purpose, and free, for once, from corrosive considerations of the bearing of one's subject upon one's time. No time was more different from these days; in the long roll of recorded history there is no greater gulf than that between the great age of Ireland and the present. During the VIth and VIIth centuries, to that isolated country—partly no doubt because it was so far away—the major portion of the unextinguishable fire of Christian culture was given in trust, there to be held till the flux of races on the mainland was abated and learning might again find her necessary "seats," inevitably localised bases, from which to engage in conquests other than mundane.

The term "Irish architecture" must be understood to indicate early Christian and mediæval work (in our more restricted English sense), and may in no way apply to the later Georgian building, for which the country is chiefly interesting from the standpoint of modern practice, however vernacular that style may have become under the influence of adopted environment and the guidance of native genius. This style, when found, is a token of the expansion of the Pale, a sign of political conquest and of the extinction of the languishing flame of a mystic Catholicism under the cold light of the "Age of Reason."

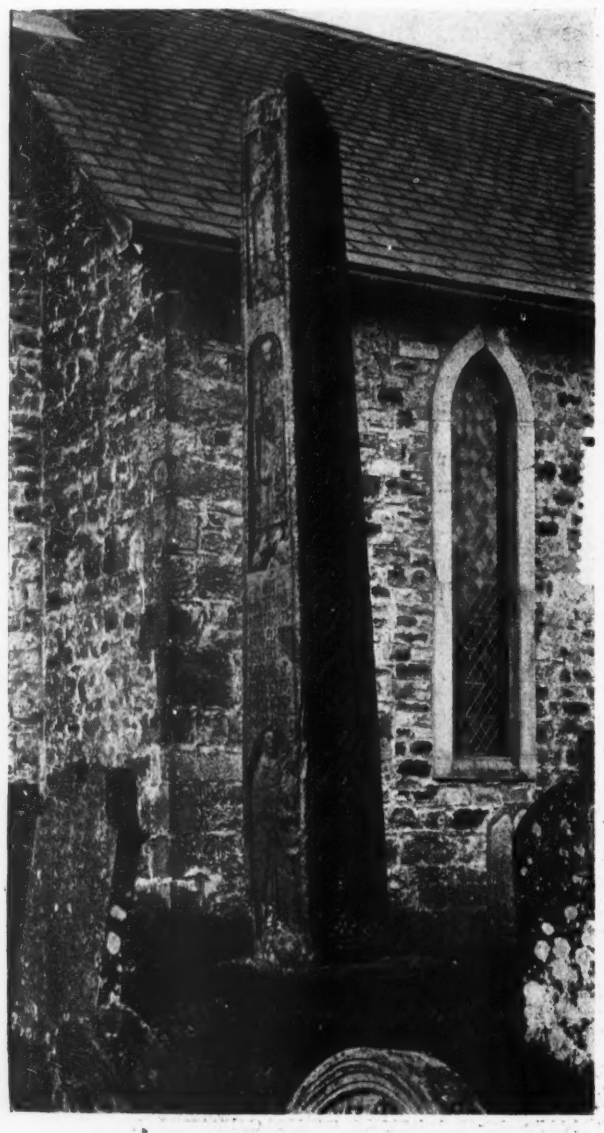
Earlier work, too, than the Georgian is to be interpreted in terms of the growth of English predominance. At about the time when the "Decorated" flourished in this country variations of "Early English" were replacing the indigenous Romanesque (if this may be allowed to pass for the moment as no contradiction in terms). Not only the workmen, but a great deal of the stones, all ready worked,

* "Irish Ecclesiastical Architecture, with some notice of similar or related work in England, Scotland, and elsewhere." By Arthur C. Champneys, M.A. With numerous illustrations, chiefly from photographs by the author. Pp. 260. 31s. 6d. (London: G. Bell & Sons, Ltd. Dublin: Hodges, Figgis, & Co., Ltd. 1910.)

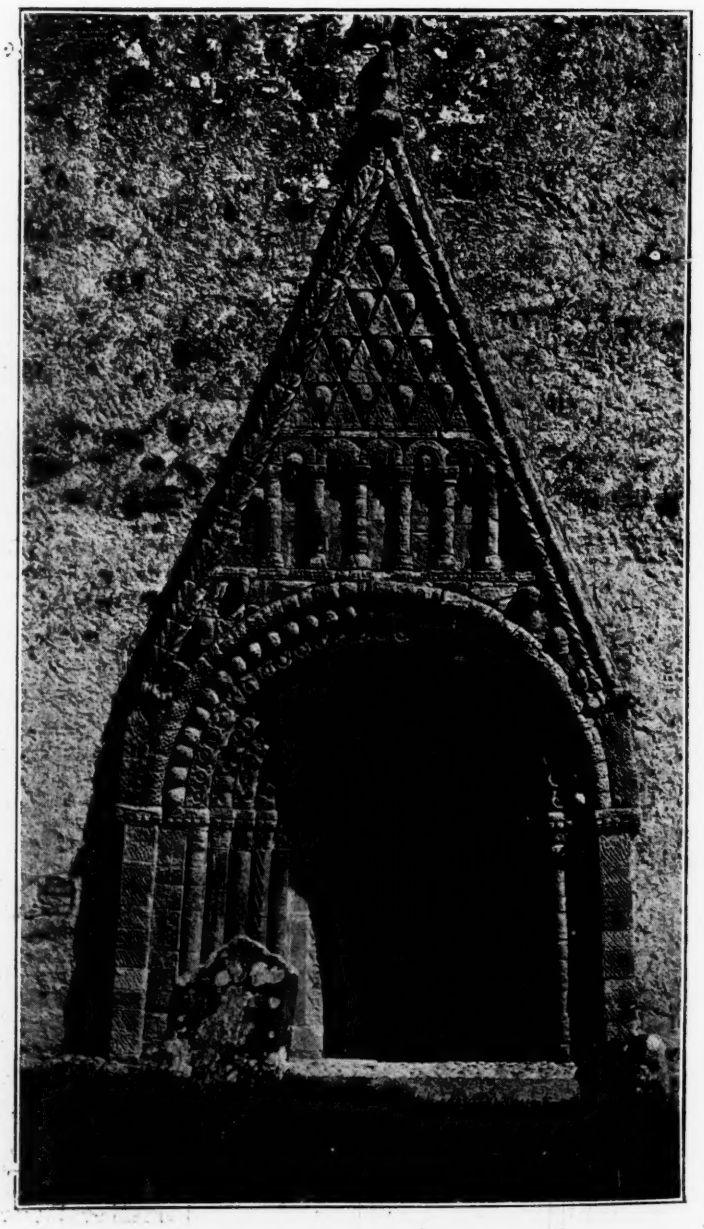
as well as the Purbeck marble shafting, were brought for the building of Christchurch in Dublin by ship from Somerset. The Somerset style in this and other churches of the time may be easily traced. "Little England in the West"—the southern portion of Pembroke—exerted an influence proportionate to its proximity rather than to its size. But on all the imported modes, modified by the Cistercian Order, the body especially instrumental in giving them substance, the native predilection for some forms over others imposed a quality still indubitably Irish. The moulded pointed arch gained tardy admittance; a curious heavy flamboyant way of tracery, together with a certain freedom and unconscious originality in combining "incongruous" parts and of overcoming circumstantial inhibition of much carved ornamentation by a bold manipulation of merely hewn stone, render the work fresh, if a trifle clumsy to English eyes, and betray the supremacy of the native hand.

The beginning of Irish architecture is determined entirely by what the individual considers architecture, as distinct from mere building, to be. There is, or was, everything from indigenous work of the most primitive kind. What remains is, of course, only that which was built of stones or earth. That many structures of the first importance, palaces and churches, were made of wood when it was available in the earliest times, one must suppose; that the practice continued till long after complete stone building was familiar, is recorded fact. We know that 280 persons were burnt in one church, and the number tells us something of the size of the building. The records of the Danish incursions tell of burnings and reburnings of many monasteries countless times. But what has survived all the hazards of war and the more deadly corrosion of peace is of stone; and if architecture is to be defined as "building for eternity," these huts and oratories and forts seem to be architecture indeed. Beehive huts (though from these as roots the wonder of Cormac's Chapel on the rock of Cashel, by an unbroken chain of examples, is seen to emerge as the flower) may be set aside. But the great stone-walled enclosures, which were the forts and the monasteries (changing their content though not their form), although they have no such progeny, are more difficult to pass by, such monuments are they and so irresistibly do they invoke visions of their time, that the blood of battling savages seems hardly to have been washed away from the ramparts. Those who know Dun Aengus, for instance, at the highest point of the seaward cliff of Aranmore, will not easily be persuaded that this place, with its three walls, the inner one 20 ft. high and 16 ft. to 18 ft. thick, in stepped stages, is not as fittingly to be termed architecture in its way as the walls of Mycenæ or Stonehenge. Round the outermost rampart is a *chevaux de frise* of angular stones facing east, downhill. In the centre, on the lip of a cliff 500 ft. high, itself seeming to be formed of Cyclopean masonry because of the horizontal and vertical fissures of its stone, a small space is enclosed. Aranmore is the last island to the west; if the defenders were defeated, there remained but the vertigo of death by dropping through the sea birds into the waves below and the dream of the Celtic Hesperides.

It is with such buildings, however, as the little Teampull Benin, some 4 miles to the south, standing stark upon the molten rock of which the island is made, that Irish architecture undeniably begins. One may claim, without hyperbole, for this little oratory all the items which go to make sublimity in architecture wherever that quality is found. It is exceedingly well built to begin with; the side walls are very slightly battered, and the jambs of the doorway a trifle more so. It yields an impression of size, it has scale out of all proportion to the actuality (to the tips of the steep gables, while they yet remained, was only 17 ft.). It appears to have been placed purposefully on



The Bewcastle Cross.
(From "Irish Ecclesiastical Architecture." Messrs. Bell & Sons.)



West Doorway, Clonfert Cathedral.
(From "Irish Ecclesiastical Architecture." Messrs. Bell & Sons.)

Teampull Benin, Aranmore.
(From "Irish Ecclesiastical Architecture." Messrs. Bell & Sons.)

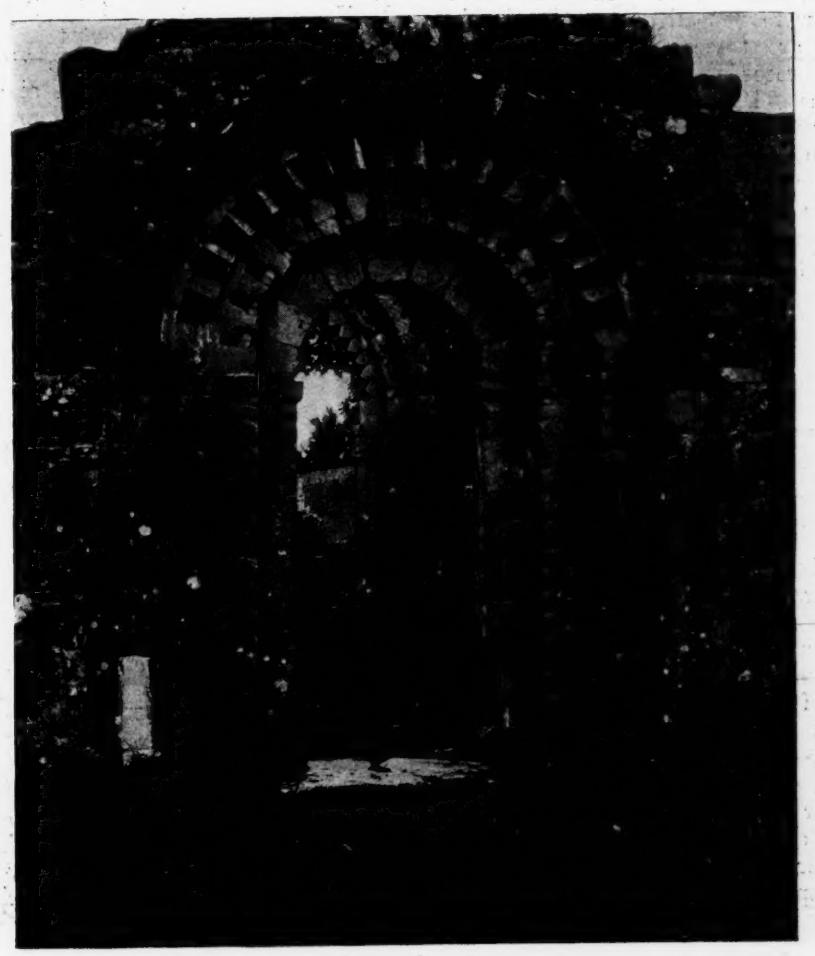
the spot where it stands so truly effective and just was the builder's choice. It is not, like Dun Aengus, the outcome of necessity, acting on a fairly intelligent organism in a tolerably amenable environment, but the result of a supermaterial tradition influencing beings imbued with faith, in a place peculiarly fitted to maintain their qualities at an intense pitch. Those attributes of mystic austerity combined with the fostering of gentle culture, which, in degree, have never been surpassed in Europe, made many such little churches throughout Ireland. Teampull Benin stands, orientated on the wind-swept back of this island in the West, and is related in aspect and prospect to the heavens rather than to the earth and the carnal needs of man.

The Round Towers of Ireland were, in the words of our author, "beyond almost all ancient monuments a subject around which the antiquarian imagination played with irresponsible exuberance, until it was checked by Petrie's more rational investigation. They were of enormous antiquity and their form Pagan. They were tombs; they were fire-temples, of Persian origin; they were Buddhist temples; they were Temples of Vesta; they were copied from the Phœnicians; they were astronomical observatories, or minarets from which to proclaim Druidic festivals. Or, they were first built by the Danes; they were intended for anchorite pillars like that of St. Simeon Stylites, or for penitential prisons. These various theories were supported by unfounded assumptions, mistranslations, or false etymology, misquotation of existing works and quotation of non-existent works." What fun!

But Professor Petrie's research and argument all goes to indicate that their origin and use was in accordance with probability, that they were towers for outlook and refuge built during the period covered by the Danish incursions.

The present occasion provides no adequate opportunity for dealing with the problems centring on the inspiration and choice of the characteristic forms of early Irish ornament. Our author plunges deeply into the subject, giving analogies from Egypt, Assyria, and Greece. Explanation is of interest as showing something of the sphere of Irish traffic with the rest of the world; for these forms—divergent spirals, key patterns, and interlacement—are so different from the constant forms of primitive beginnings in decorative art as to preclude the theory of autocthonous growth. But beyond the general admission that they show affinity with the European ornament of the Dark Ages, especially as preserved for us in their metal work, dinanderie — barbarian imitation of Classic forms—we can learn little of importance, no definite strand of connexion can be established. The Irish took what their travellers remembered and the traders brought in the usual way of the dissemination of culture, we must suppose; and, turning it over within the bounds of their own material ability and working on it with the national psychology, almost as pronounced then as now, produced a unique phase of decorative art, which, as exemplified in what are known as Celtic crosses particularly, of course, has for sheer decorative quality never been excelled.

It is, however, when we reach the more demonstrably Romanesque era of the Xth century that Irish architecture proper becomes so peculiarly entrancing. It is not necessary for us to perplex ourselves with the dates and the exact order of the examples, for in a country so much alive and so large as Ireland was then, when each seat of culture probably derived at least as much of its architectural inspiration direct from the Continent as from interchange, in such factious times, with its neighbour, conclusions drawn from such investigation add nothing to our stock of essential knowledge, and its pursuit, apt to be engrossing, will lead us away from an untroubled appreciation of the characteristic charm of the work. Nor is it



Doorway of Nun's Church, Clonmacnoir.
(From "Irish Ecclesiastical Architecture." Messrs. Bell & Sons.)

desirable to establish a contention, as some have tried to do, that Irish Romanesque is the progenitor of the style in other lands, especially in England. Any priority in point of time which the Irish work may boast is sufficiently accounted for by the more advanced state of cultural development of that country as compared with our own.

But it is desirable and interesting to note the particular flavour which Romanesque forms, grown from the common root in the tentative struggles of Europe, awakening from partial barbarism (a period beginning historically with the election of Charlemagne in A.D. 799), which Romanesque forms possess, when translated to a land and people differing so fundamentally from the formal sources of this civilisation. The aspect of technical timidity—outcome of rudimentary tools and refractory material—which characterises the work, and the air of diffidence these foreign forms wear, as they so tentatively essay an always happy lightening, on jamb, impost, and arch, of their massive and often rude surroundings, combined with the sad desolation in which examples are found, make Irish Romanesque perhaps the most gracious and shy of all the flowers which sprung from the carcass of Rome. And we must never forget—as we are as prone to do, in the case of these ruins, grey and damp with mist, as, say, in the analogous instance of the Elgin marbles, colourless and misleading shreds—the concomitant trappings, which, from what we can learn about them, must have made these little churches as dimly gorgeous, in their own country, as any Byzantine shrine. We have sufficient record and example of glass and tiles—but especially tiles, caustic and stamped—to show that the inherent parts were not all grey and colourless. There are traces of paintings on the walls, records of woodwork and of churches hung with tapestry. They were replete with books in manuscript—some of the most wonderful manuscript in the world—with chalices, reliquaries, book shrines, and bell shrines. The vessels on their altars were often of silver and of gold.

NOTES.

Coronation Stands and the Influence of Architecture.

PROMPTED by our "Note" on the danger to the Abbey and other historic buildings caused by the Coronation stands, "A Perplexed Layman" sends us a sheaf of letters and leaflets of protest—addressed principally to church dignitaries—and claims our support. He is grievously concerned with the strictly religious aspect of the matter—but into this, of course, we cannot enter. For all we know the end may be considered to justify the means. It is not for us to judge. Our concern is for architecture, secular as well as religious, and we are as much concerned for the safety of Westminster Hall as for that of the Abbey. But apart from the question of their safety it concerns us that great works of architecture be treated with proper respect and used in accordance with their nature and character, otherwise their full artistic influence is destroyed, and the interests of architecture suffer. No one, we think, would venture to contend that the present appearance of the Abbey, St. Margaret's Church, and Westminster Hall could be defended from an architectural standpoint, and we are interested to know that it appears equally indefensible from another, and not less important, point of view. That a large and influential section of the community is apparently indifferent to both aspects of the matter is all the more reason for emphasising them.

The New Science Museum Site.

THE memorial to the Prime Minister signed by nearly 600 members of scientific societies calling his attention to the irreparable injury that will be done to the future efficiency of the Natural History Museum by the erection of the New Science Museum in the position proposed will, we trust, receive the attention which so weighty an expression of opinion deserves. Professor Gardiner, in a recent letter to the *Times*, puts forward what appears to be the only satisfactory solution of the difficulty. After pointing out that the space now available for the Natural History Museum is not as large as that reserved for the Natural History Museum of New York or the Smithsonian Institute of Washington he concludes that it would be wiser to erect the New Science Museum on another site rather than destroy the future utility of the Natural History Museum. He further points out that in the next generation both buildings will need extension, but no ground will be available, when the nation will be called upon to provide entirely new museums or be content with second-rate institutions in its capital. We think it really is time that the Government took up the whole question of adequate sites for public buildings in a broad and comprehensive way—with some regard to the necessities of the future.

Architects and Clerks of Works in the Civil Service.

THE letters we have published lately with reference to the employment of architects and clerks of works in various Government departments call attention to arrangements which, as far as we know, may be a necessary part of the present unsatisfactory organisation of such departments. That architects should, as a matter of fact, be permanently employed and yet not be placed on the permanent staff may be a logical arrangement, though its logic—and its equity also—is no more obvious than is the necessity for the existence of the departments themselves. With regard to the clerks of works we should have thought that the most competent men—the men of force of character and personality—would naturally be employed on the most important new buildings, and that it would be good policy to give them assured positions free from all sense of inferiority, yet, according to our correspondent "X," no clerk of works can serve on a new building and be on the permanent staff, this coveted position being reserved for those doing routine maintenance work of less importance.

An Essay in Criticism.

A CORRESPONDENT favours us with the following elegant extract from the *Vancouver Saturday Sunset*—

"Speaking of art and architecture in Vancouver, have you seen those lions at the new Court House? The idea of putting those ferocious beasts at the portals of Vancouver's hall of justice must have been conceived in the mind of a man who has a penchant for dogs and dog-houses. The whole effect is to make the Court House look like a splendid dog-house with the dogs taking an airing in front. All that is needed to complete that effect is a collar on the lions with a chain to fasten them to the Ionic columns behind.

"The lions are too big for the building, the work of destroying the proportions has been just about completed by the introduction of these terrific beasts of prey, whose manes resemble a dish of mussed-up tripe more than anything else I can think of. As lions the less said about them the better. As an example of botched architecture Vancouver may boast of a prize horrible example in the new Court House."

Our correspondent thinks that English criticism of architecture seems to pale before the methods of Vancouver. It does. Our criticism compared with this is as the tame cats of Trafalgar-square to the "terrific beasts of prey" of the Vancouver Court House—symbolical, we presume, of the wild and woolly west. After all, though, free and independent criticism is necessary to a living architecture, and here our Canadian brethren seem to have the advantage of us. With the Beaux-Arts principles to guide them in the path of progress, and candid outspoken criticism lying in wait for them the moment they stray from it, their recent remarkable progress in the art may not be so difficult to understand.

Professor Lanciani as Senator.

WE have great pleasure in being able to announce that Commendatore Rodolfo Lanciani, Professor of Roman Topography in the University of Rome, Correspondant de l'Institut de France, D.C.L. Oxon, has been appointed an Italian Senator. Professor Lanciani is well known in this country as one of the most distinguished of the Honorary Corresponding Members of the Institute, which, as our readers will remember, conferred on him in 1900 the Royal Gold Medal for distinction "as an architect, an archæologist, or a man of letters." Although Italian by birth, Professor Lanciani has many English sympathies, has frequently visited this country, and has written one of his most important books in our language. We are sure we express the feelings of all his colleagues in this country in extending to him our most cordial felicitations.

THE VICTOR EMMANUEL MONUMENT, ROME.

IN Emile Zola's brilliant romance of "Rome," which formed a part of his series of "Les Trois Villes," the Abbé Pierre has entered the Palace of the Cæsars, and as he looks down from these ruins of the Palatine upon the Forum, the Via Sacra, with its pavement still furrowed by the chariot wheels of ancient Rome—"*avec son dallage Creusé par la roue des chars*—the Arches of Septimus, of Titus, and of Constantine, and beyond the great mass of the Colosseum, his thought evokes the figures of the Cæsars who had piled the hill on which he stands with those records of their splendour and their pride.

"All of them possessed alike this passion of building (*cette fureur de construction*), which seemed to belong to the soil of this seat of their Empire, which reappeared in each of them with growing intensity, filling them with the desire to go farther, to surpass their predecessors with walls yet stronger and higher, with yet more marvellous piles of marble, more splendid columns and statues. And this thought was the same in all—of carrying forward their life, of leaving to the astonished generations that were to come the witness of their greatness, of perpetuating themselves in marvels which should never perish, but should still weigh upon the world with the force of Colossi, even when their own ashes had been scattered to the winds."

And as the Popes succeeded in the course of ages to the Emperors, the same passion for building seemed to seize these new masters of the Christian world. "There is not a famous Pope who has not wished to build, who has not returned to the tradition of the Cæsars who had eternized their reign in stone ere they passed away to rest among the gods. . . . *Le même souci d'immortalité terrestre éclate. . . . C'est une hautise, une involuntaire débauche. Des monuments sans cesse remontent de cette poussière de monuments.*"

But, yet again (and this is the object and the conclusion of our quotation here), in the new quarters of the city—"Pierre was once more struck by the truth that whoever possesses Rome is seized by this madness of marble (*la folie du marbre*), by this need of building, of leaving to future peoples their own monument of glory. After the Cæsars, who had piled up the Palatine with their palaces, after the Popes, who had rebuilt the Rome of the Middle Ages and set their scutcheons upon its walls, comes now the Italian Government, who has no sooner become master of the city than it wishes immediately to reconstruct it—but more glorious and more vast than it had ever been before. It is the same influence of the soil, the blood of Augustus which again mounts into the head of these last-comers, and has thrown them into this mad dream of making the third Rome the new Queen of the world."

No words could be a better introduction than those just quoted to the study of the vast "Monumento"—that pile of marble, yet incomplete, which is to be the Monument of Victor Emmanuel II—which has been already twenty-five years in construction, and has absorbed more than thirty millions of "lire," and may require as much again ere it can achieve its ultimate completion.

In the present notice we shall not discuss the economic side of the question—as to whether a country like modern Italy might not more wisely have employed her resources in that work of reconstruction which is so needed after centuries of neglect and decay. We shall confine ourselves entirely to the artistic side of this vast monumental creation, and we have had special facilities afforded us through the kindness of the brilliant young architect, Sig. Marcello Piacentini, who knows every detail, almost every stone of the vast work, and whose father is one of the two architects at present in charge of the Monument.

Let us first gain an idea of the topography; and we believe that those of our readers who have already visited Rome will here easily follow us. They will know that the city is traversed by the Corso, a street which, commencing at the Piazza del Popola, debouches upon that Piazza Venezia, which is flanked by the vast building called the Palazzo Venezia, once occupied by the Venetian, and in later times by the Austrian, Embassy.

On the opposite side of the Piazza has been constructed in quite recent years the Palazzo delle Assicurazioni, often called now the Palazzo Venezia Nuova, intentionally built to correspond in its main architectural features and in its great tower—where the present *Ministero delle Belle Arti* has, under Dr. Corrado Ricci's guidance, just found an admirable home—with the Palazzo Venezia facing it; and it was proposed when we first commenced these notes (in 1909) to eliminate that wing of the Palazzo Venezia which extends across the Piazza, and which is often called (from its architect) the Palazetto di Benedetto da Zajano, and to reconstruct this—just as it stood at that time—in a vacant space on the other side of the Palazzo Venezia. As we complete these notes we understand that this is now being carried out. This having been done, the Piazza Venezia will form a vast irregular square, flanked on each side by the two palaces with their high towers which we have just mentioned, with behind it the Corso and in front the still unfinished Monument to Victor Emmanuel. Behind this, but out of sight now, is the high ground which is crowned by the Church of the Ara Cœli and the Roman Capitol; and the central point of the Monument, which is, of course, the equestrian statue of Victor Emmanuel, is so placed that the figure commands the view of the entire Corso, ending with the obelisk in the Piazza del Popolo.

The monument itself is not of marble, but of a stone called "*botticino*," of a chalky character, which is quarried near Brescia, and which, though less costly than marble, closely resembles that of the Carrara quarries in its brilliant whiteness and the polish which it can acquire. It has the defect that it blackens locally under exposure to the weather; but what delicate finish of workmanship it can acquire we may see when we enter the Monument and look (as we face the building) at the decorative work of the right wing, which was completed under the direction of the first architect, Giuseppe Sacconi. Never have we seen marble cutting of more exquisite delicacy or finish than these mouldings of the great gateway; they resemble in this the best antique work, as well as that of the Italian *Quattrocento*, and if the entire creation is carried through on this level (as we exclaimed to the architect who accompanied us) it will at least be a marvel of workmanship.

But it will now be of use to get a clear idea of the whole conception of the Monument ere we examine further the beauty of its details. The design of the whole as conceived by Sacconi is Greco-Roman, but yet strongly Hellenic in its feeling, the columns being of the Corinthian Order; but it has been well said of this fine architect that "he had divined what archæological research is slowly confirming—that is, the persistence of an Italic architecture, based upon elements drawn from the Etruscans, the Greeks, and yet earlier races, but with a definitely national type and character . . . and through all Italy he wandered, studying and copying the remains of the monuments of Etruria, Pæstum, Magna Grecia, Campania, Latium, reconstructing, according to his artistic requirements, capitals, details of

Victor Emmanuel Monument, Rome. Winged Victory, in bronze gilt.

Victor Emmanuel Monument, Rome. Eagles and Festoon on Architrave.

ornaments, carved reliefs which hinted at this Italic spirit, and which he was to use in his modern affirmation of this spirit upon the Capitol."

When, however, the architects came to the practical work of laying their foundations they had found (as we are told by their successors), not solid rock, as they had expected, but accumulations of soil and rubbish, brought thither by the Romans, one through which they had to strike down for their foundations, which now reach under the Piazza Venezia. Hence came the idea of galleries beneath, and above these a long series of stairways which should lead up to the central group of the "Monumento"—the equestrian figure of the "*Re Liberatore*," with beneath it the (so-called) "*Altare della Patria*" (the Nation's Altar), adorned by a frieze in marble; the reliefs beneath the statue of the King will represent the cities of Italy, but the still more important frieze of the *altare* has been assigned, as a result of competition, to the two sculptors, Zanelli and Dazzi, and their work, when completed, will be submitted to public inspection *in situ*, if not to an actual *plebiscitum* or *referendum* of the citizens of Rome, to decide which of the two designs shall be finally selected.

It is impossible to leave this portion of the subject without stating our conviction of the immense benefit to the sculptor's art in Modern Italy from the free public competitions, which have taken place especially in connexion with this Monument; the brilliant young sculptor Zanelli is one, among others, of the younger men whom these competitions have brought forward.

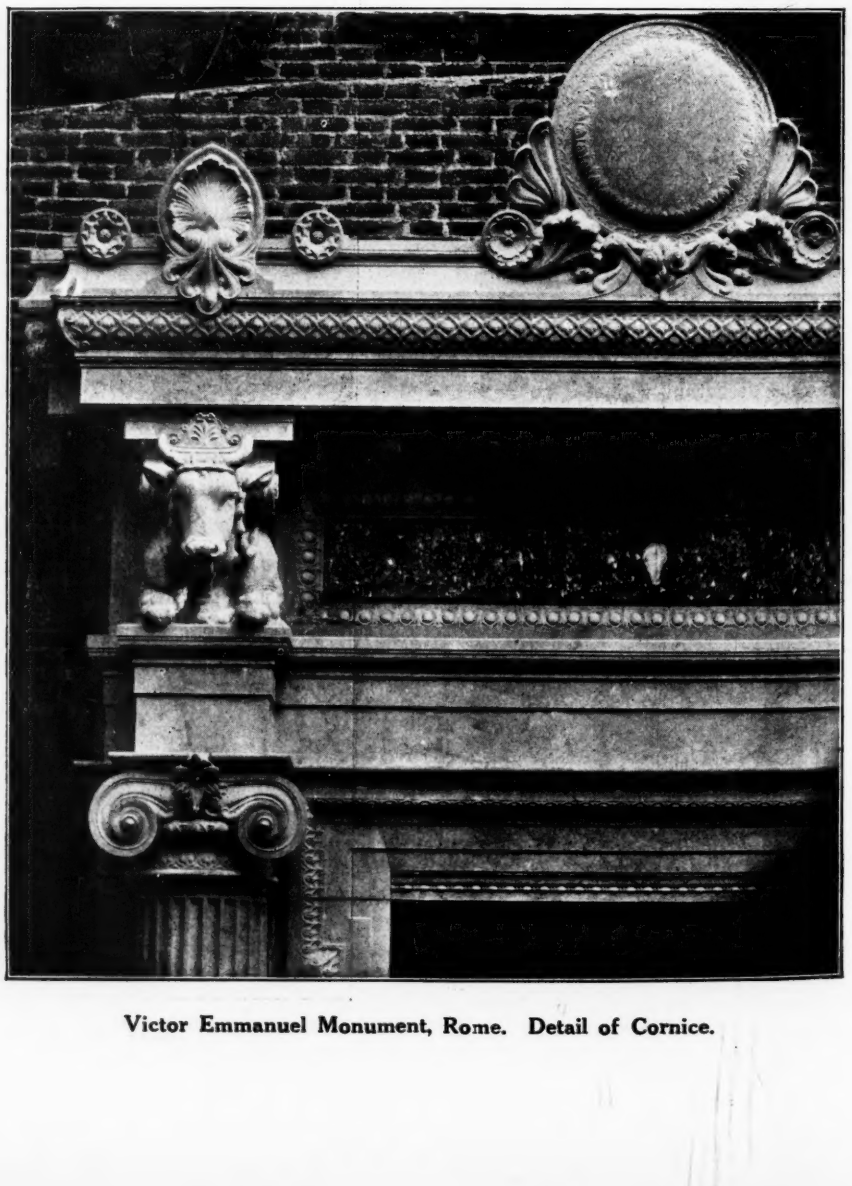
Our present great monumental commissions owe too much to influence and authority—we mean the authority which comes from assured success; but in Italy, with a different system, we get a fresh impulse which is really vivifying modern Italian plastic art. It would be out of place here to forestall the public criticism of the two competing designs. We will, therefore, only say that the relief by Angiolo Zanelli, part of which we have seen *in situ* upon the front of the *altare*, is very noble sculpture, inspired by that dignity of sentiment, that high sense of form which has come down to us in a masterpiece of Hellenic art—the frieze of the Parthenon.

Behind the equestrian statue and the "Nation's Altar" (*altare*) rises a magnificent portico of Corinthian columns, the vastness of which may be measured by the fact that each single column measures 18 metres in height and 1½ metres in diameter. The scaffolding has now been finally removed from these fine columns; they are seventeen in number in the central block, and over each column appears a statue of each of the Provinces of Italy. We may notice especially that of *Latium*, which occupies the centre, and that of *Calabria*, with a shield and goat's skin, by a clever young sculptor, Sig. Niccolini. Between these figures and the columns beneath runs an architrave of eagles with connecting festoons, which is very fine in design; though it has been objected—and with some justice—that the whole of the entablature, including this architrave, the frieze of the female figures (provinces of Italy) and the upper cornice, is too heavy, and hence dwarfs the columns and does not give play to their really grand proportions. There is, we consider, some truth in this criticism, though we cannot accept another, which is that a colonnade ought only to be used as an approach to some further vista or inner shrine; the Romans used the Greek forms freely as decorative motives, and here it seems the criterion is the beauty of the achieved result.

Crowning the two side wings of this portico will appear the *quadrige*, the bronze chariots with four horses, driven by a Victory, which have been assigned to the sculptors, Bartolini and Fontana. The designs for these *quadrige*, which we have studied within the Monument itself, are admirable—that of Bartolini more classic, that of Fontana more free in its rendering. The design for the central equestrian statue of Victor Emmanuel has also been approved, and when we left Rome the great figure was in place and being gradually uncovered. It is of gilded bronze, and of colossal size; commenced by the sculptor Chearadia, after his death it was completed by Galloni. Here, too, it is difficult to judge without having seen the whole figure *in situ*; but there is certainly the question whether, in a monument of such purely classic design as this, a figure in modern military costume may not strike the one discordant note, and this, we believe, to have been actually the view of Sacconi, who wished this central figure treated quite differently. Here, however, it now is—*un fait accompli*; and let us give it a fair trial when it appears.

Around the great stairway of the Monument will be groups of sculpture. The two front groups in bronze on either side of the approaching steps represent "Thought" (*Pensiero*), by Monteverde, and "Action" (*Azione*), by Jerace. Behind them, flanking the "*altare della patria*," will be "Sacrifice" (*Sacrificio*), by Bistolfi, a sculptor who has lately come very much to the front in Italy; "Concord" (*Concordia*), by Pogliaghi, the sculptor of the doors of Milan Cathedral; "Justice" (*Il Diritto*), by Ximenes; and "Force" (*La Forza*), by Rivalta.

We may add that the base of the "Monumento," with its figures (to which we have alluded) of the cities of Italy, will be entrusted to Macagnani, the brilliant sculptor who has

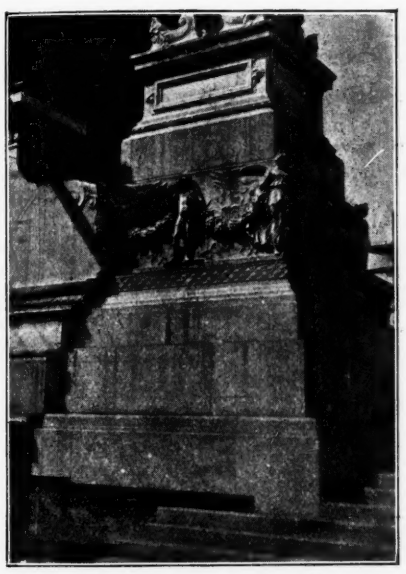


Victor Emmanuel Monument, Rome. Detail of Cornice.

already completed the decorative work of the doorway on the right, with above it, also by his hand, the seated figure of "War" (*Guerra*).

Professor Macagnani is one of the numerous sculptors who has been attracted by this vast undertaking, with its inspiring series of public competitions (*concorsi*). The figure which balances his "War" upon the right doorway is the "Revolution" (*Révoluzione*), by Ferrari; while Macagnani meets us again in those exquisite pediments, with draped women and naked boys, of the upper platform, which support four columns of great beauty, each of which is surmounted by a winged "Victory" in gilded bronze. These four "Victories" are already in place and look very brilliant; and they will look still better when they come to harmonise with the gilded bronze figure of the mounted monarch.

Their sculptors are, respectively, Cantalamessa, Apolloni, Zocchi, and Rutelli; and we give here a reproduction of the "Victory" by Comm. Apolloni, a sculptor who has exhibited with success in the recent Venice and in this year's Roman exhibitions, and who was Vice-President of the Artistic Congress held this spring in Rome.



Victor Emmanuel Monument, Rome. Detail.

It will be seen from the above remarks that the "Monumento" in all its main features is already completed, and it was opened on the date fixed, June 4 of this year of celebrations of Italian unity, though most of the detail will obviously have to be completed later. We formed a good judgment of the progress of the work when we climbed to the top of the building and stood upon the scaffolding which, till lately, covered the vast columns of the portico.

What a panorama is that which here awaits us—such as no other city of the world, nor even Rome herself in any other part, could afford us! Far upon the right the Aventine, with its line of lofty buildings, nearer yet the verdure of the Palatine, and still closer beneath us the Forum Romanum, like the skeleton of a gaint disinterred, with the vast bulk of the Colosseum breaking the sky line in the distance; while upon the other side the whole panorama of Papal and Modern Rome meets the eye, and, with the monument of Victor Emmanuel as a centre, the entire length of the Corso may be traced to the obelisk of the Piazzi del Popolo, and every carriage counted, though at that altitude and distance they seem like flies crawling along a barren line of brown.

And now the "Monumento"—the work of so many years, into which, within these years, a stream of public money and artistic genius has been lavishly poured—has been opened to the world by the grandson of the great king who made the Italian nation an established fact in the European Polity. The greatest of the celebrations of Italian Unity has thus been accomplished; and—whatever may have been and are the criticisms of this vast artistic creation—we believe the verdict of the world will be that that achievement is something great, something worthy of Italy—and not unworthy of Rome.

COMPETITION NEWS.

New Public Hall, Leicester.

A special meeting of the Leicester Town Council was held at the Town Hall on Tuesday last week, when the Special Committee of the Town Council which was appointed to inquire into the proposed erection of a public hall on the site adjoining the Victoria Park reported that Mr. S. P. Pick, F.R.I.B.A., and Mr. E. G. Mawbey, the Borough Surveyor, selected the following three designs from borough architects, who were asked to compete for premiums, viz.:—First premium, 100*l.*, Messrs. Stockdale Harrison & Sons; second, 50*l.*, Mr. Howard H. Thomson; third, 25*l.*, Messrs. Langley & Baines. The Committee's report stated that the hall would have a total accommodation of 3,034, viz., body of hall (chairs) 1,462, front gallery (fixed seats) 710, back gallery (fixed seats) 462, orchestra (fixed seats) 400; also a sufficient platform accommodation for a full orchestral band. In addition to this there would be standing room in the promenades for nearly 2,000 people. The building would be rectangular in plan, with segmental-shaped ceiling, which is the most suitable shape for general municipal purposes. The main approaches would be from the Granville-road and Victoria Park side, where the main entrances would be, and there would also be approaches from Victoria-road and Regent-road, but these have yet to be worked out in detail. Spacious entrances, foyers, corridors, and ample means of ingress and egress are provided. The estimate for the buildings and seating, including the chairs for the body of the hall, the drainage, water mains, all complete, exclusive of architect's commission, is 13,800*l.*, the sum of 1,200*l.* being reserved for entrance-gates, fencing, forming carriageways and footways, etc., to be carried out by the Corporation. The Committee recommended that Messrs. Stockdale Harrison & Sons be instructed to proceed with the preparation of detailed plans and drawings with a view to carrying out the first premiated design; also that application be made to the Local Government Board for their sanction to the Council borrowing 15,000*l.* for the erection and furnishing of the proposed building.—After some discussion the Committee's recommendation was carried.

BOOK RECEIVED.

THE PRINCIPLES OF PLANNING BUILDINGS. By Percy L. Marks. (London: B. T. Batsford. 12s. net.)

BRUSSELS EXHIBITION FIRE.

Red Book No. 154, issued by the British Fire Prevention Committee, deals somewhat exhaustively with the fire at the Brussels Exhibition last year, and makes suggestions as to safeguards at future exhibitions of the same kind. The most important primary precautionary features recommended are that buildings or blocks of buildings should be properly isolated, with the sub-division of large buildings into parts, that the risk of outbreaks of fire should be reduced by limiting the use of open lights and fires, by the prohibition of smoking, and by exercising great care in connexion with lighting, power, and heating services, and the storage of highly inflammable substances, that the installation and administration of fire services should be placed in the hands of qualified persons, and that the construction of buildings should be governed by the character of the exhibits which they are destined to accommodate. The report is illustrated by numerous photographs, and may be commended to those concerned in the promotion of exhibitions generally.

GIDEA PARK HOUSE AND COTTAGE COMPETITION, ROMFORD.

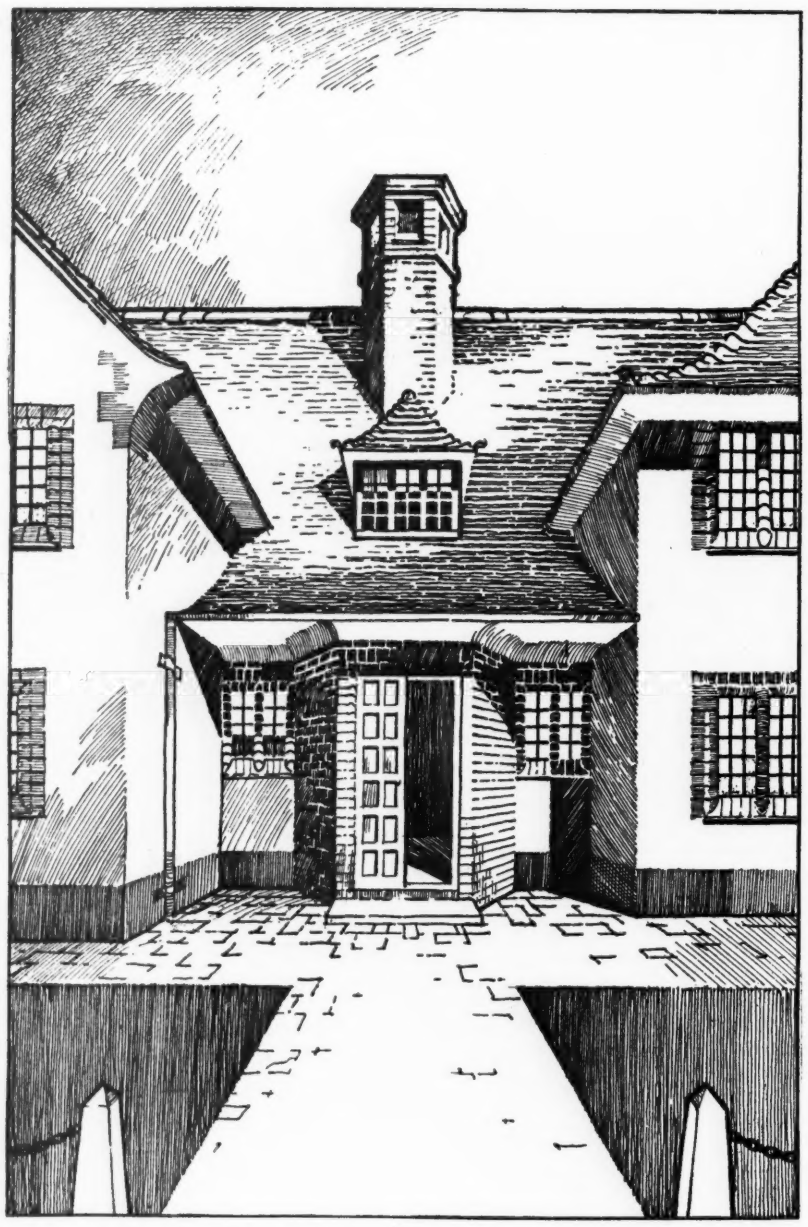
THE exhibition of small houses and cottages at Gidea Park may perhaps be taken as representative of the modern trend of thought in this direction, containing as it does representative work of some of the ablest of the younger generation of house designers. It is a little difficult, however, to discover from an examination of these designs in what direction domestic work is tending, to discover any general principle, any mental attitude underlying them, except perhaps, in the more able designs, a tendency to simplicity, which on closer examination is found sometimes to be a little self-conscious and, as expressing the internal arrangements, a trifle misleading.

In the later development of monumental and commercial work in this country there is to be found a distinct underlying principle, a tendency to complete organic structure and to the straightforward and truthful expression of this structure, which gives the building its characteristic effect. This tendency is not, perhaps, so noticeable in domestic work. The plans less often show a striving for complete organic structure, and the internal arrangements of the plans do not express themselves in the elevation with the same directness.

In monumental work there is also a definite endeavour to give every unit of the building a position on the plan in harmony with its relative importance to other units, so ensuring that each unit shall influence the elevation to a degree that expresses this relative importance, and help to draw out and express the inherent character of the building; but in domestic work this principle seems to be usually ignored.

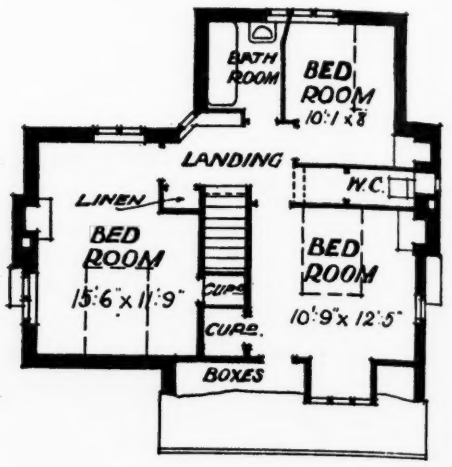
Take as an instance the position allotted by so many of these designs to the sanitary arrangements. The question of cost suggesting that they be kept to the front, when the drainage is taken out that way, several of the designs show the bath or water-closet, or both, over or nearly over the front door, where the noise from the waste can be heard by people waiting at the door. This, apart from the inconvenience, is, from the point of view of monumental or commercial planning, too important a position for the character of the unit; but the laws of artistic expression suggest that, wherever it may be placed, its position should be clearly recognisable in the elevation, otherwise the design will not "read." The tendency of domestic work seems entirely opposed to straightforward expression on this point, judging by the designs by Mr. Curtis Green (illustrated in our last issue), Mr. Hubert S. East, and Mr. Reginald T. Longden, where the single-light bathroom window is connected with the adjoining window of the bedroom, so disguising the presence of the bathroom and leading the spectator to believe an untruth and creating in his mind a false impression of the arrangement of the house and the character and life of its occupants. If the sanitary arrangements are of sufficient importance to require so prominent a position on the plan—and from the sanitarian's point of view they are, no doubt, of the first importance—then they surely should be given an equal importance in the elevation, and not be treated like an inconvenient or indelicate fact which, having been allowed by an oversight to intrude itself upon our notice, is discreetly ignored by people of taste and real refinement. We have referred to this point, among others, by way of illustration, as it makes our meaning clear, not with any wish to offend the susceptibilities of discreet designers.

A glance at the catalogue of the exhibition will show in how few cases it is possible to judge the internal arrangements from the outside, to guess where the principal sitting or bed room or stair is placed. In Mr. Curtis Green's charming design, showing a definite attempt at organic structure, this is particularly noticeable. We see a main gable with a wide six-light window over the front door, forming the central dominant feature of the design, and, not being so conversant as we should be with the methods and point of view of domestic designers, we naturally,

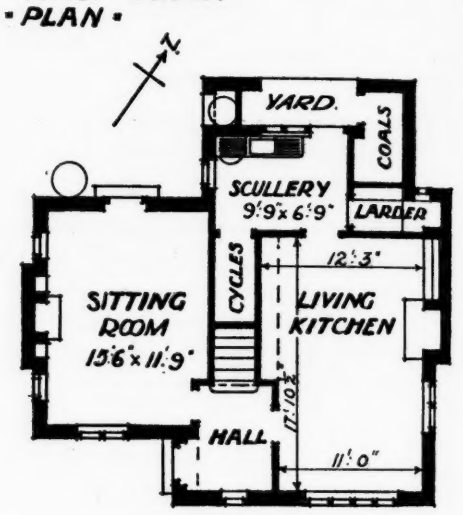


Gidea Park: House by Messrs. Forbes & Tate.

in the innocence of our hearts, imagine that this is the principal bedroom, and note with pleasure and aproval that the principal unit of the first-floor plan forms the dominant feature and gives character and charm to a most expressive design. When we discover, to our surprise and disappointment, that this gable really expresses the stair, the bath-room, and the water-closet, we feel obliged, most reluctantly, to take it all back, and are left with a slight feeling of bewilderment, wondering whether the same laws of architectural expression which appear to have guided the designers of the masterpieces of all the various styles of the past are rightly applicable to the English domestic work of to-day. When we remember that we are accustomed to regard our domestic work as the fine flower of English architecture and to acclaim its superiority to that of any other country. We seem driven to the conclusion that they are not, and are again left wondering whether its superior quality is attributable to this fact, whether its strength lies in its freedom from principle and its

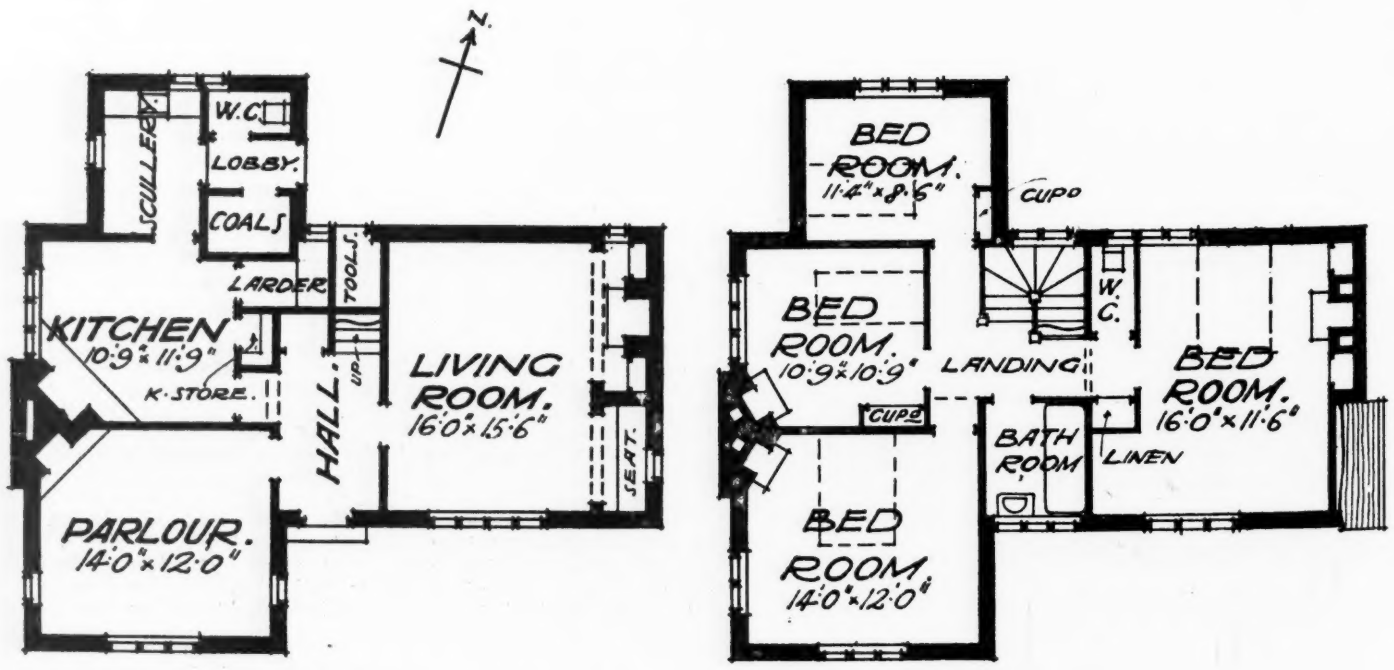


· FIRST FLOOR ·
· PLAN ·

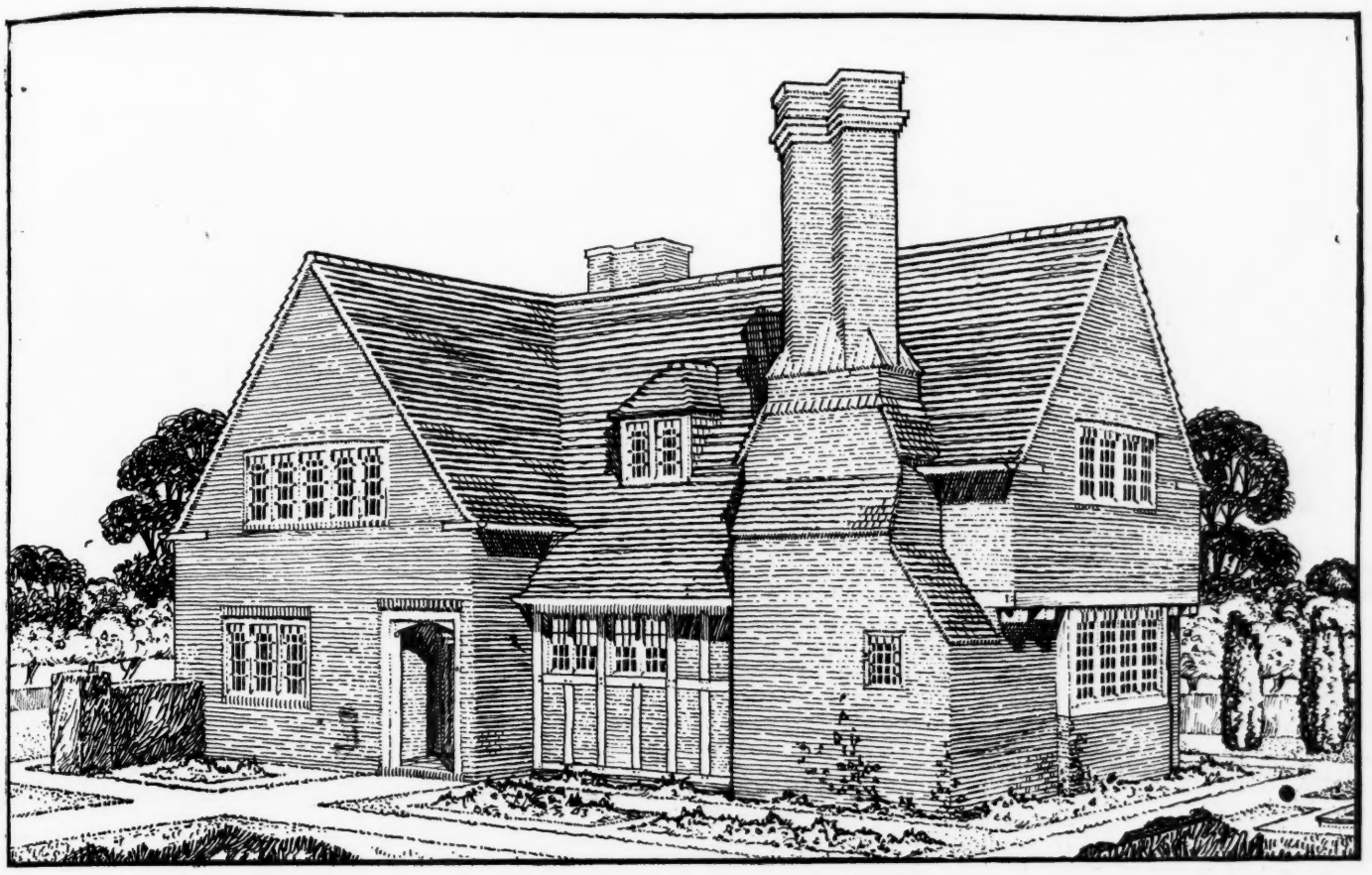


· GROUND FLOOR ·
· PLAN ·

Gidea Park: Class II. Plans of a House by Mr. Herbert A. Welch, A.R.I.B.A.
Awarded Second Prize of 100*l*.



Gidea Park: Class I. Plans of a House by Mr. Herbert A. Welch, A.R.I.B.A.



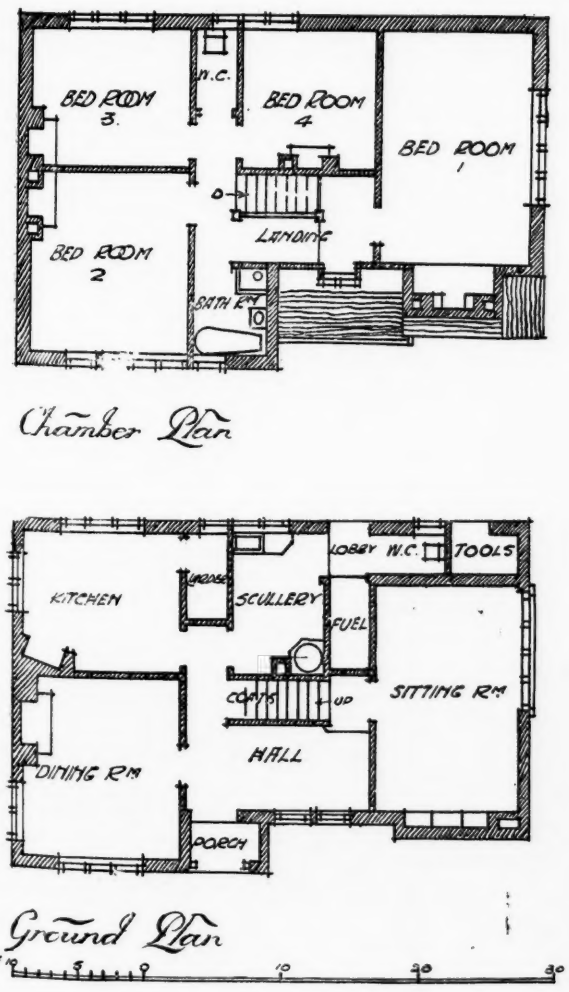
Gidea Park: Class I. Second Prize of 100*l.* awarded to Mr. Reginald T. Longden.

superiority to all pedantic rules and regulations. If this is so, then, of course, any criticism on ordinary lines is wide of the mark.

Mr. John Burns, M.P., opened the new garden city on Thursday last week.

The opening ceremony took place in the open air on the estate in very pleasant surroundings. The Earl of Warwick, Lord-Lieutenant of Essex, presided.

Mr. John Burns said it was only a year ago that the foundation-stone of the experiment was laid, and now a new community of fresh houses had already risen in an ancient, historic, and beautiful environment. He was grateful to the promoters for having preserved, as far as it was possible to do so, the natural amenities of the district, and had only cut down trees where it was absolutely necessary to the successful carrying out of their plans. The staff of the Local Government Board had just got out the preliminary figures for the census of 1911. These showed



Plans of Mr. Longden's House.

Gidea Park: House in Reed Pond Walk.

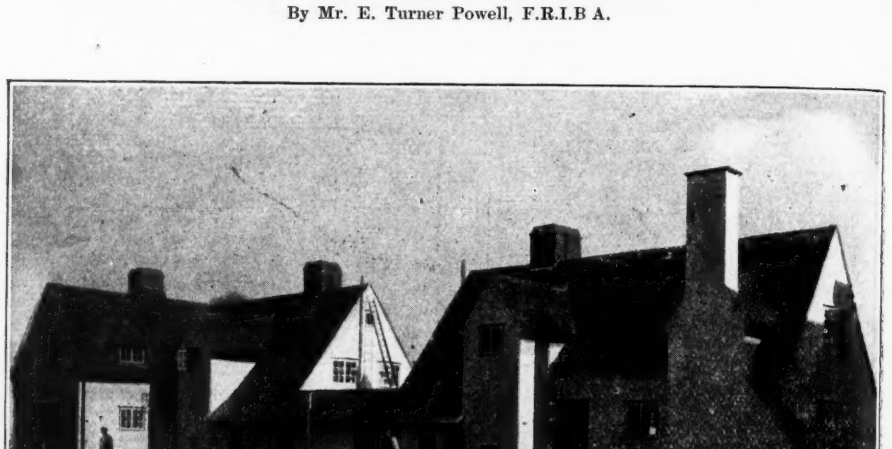
Mr. Edwin Gunn, A.R.I.B.A., Architect.
The Builder, Mr. F. W. Jarvis, awarded Second Prize of 50*l.*

that London, to which that district was an auxiliary dormitory, had lost in the last ten years 14,000 persons, and there were 50,000 empty houses in the great City. But in the ten years since the last census the County of London had increased by 700,000, and Greater London beyond that by 670,000. Essex alone had gained 245,000, or 30 per cent. more than the county had ten years ago. But the gain would not be all to Essex. What Essex and the counties round London gained in population, the Metropolis gained in health. In the last ten years there had been a diminution in the death-rate of 32 per cent. But even better than the reduction in the general death-rate was the improvement in infant mortality. The day that the London County Council took electric tramways over Westminster Bridge, the day the "battle of the bridges" ended in victory for the people, that day consumption received notice to quit, because the beginning of the end of the slums and of overcrowding was then in sight. In this connexion he was glad that the Great Eastern Railway had built a new railway-station for Gidea Park, a station which was much more artistic than most similar structures. He rejoiced that Essex was getting its share of the overflow of London, because he did not want London to grow lopsided, and spread only over Surrey, Kent, and Middlesex. With regard to the point raised by Lord Warwick about labourers' dwellings, he could only say that he had sanctioned 180 loans for housing schemes at a cost of 1,250,000*l*. That sum was advanced by the Public Works Loans Commissioners at the lowest rate of interest that the State could secure, and in his judgment the State had no right to lend money at a loss for these schemes, because that would produce a privileged, and, therefore, a pampered class of tenant, who would be living on charity rents at the cost of the general taxpayer. He was against charity rents. In conclusion, Mr. Burns protested strongly against the best room being provided in a working-man's house. He remembered the parlour in his mother's home. It was a place used as a mausoleum for china dogs, wax flowers, and dusty antimacassars, where no one ever entered except the doctor, the undertaker, or the insurance man. A best room was a ridiculous thing in a working-man's house, and was a sort of imitation of West-end drawing-rooms.

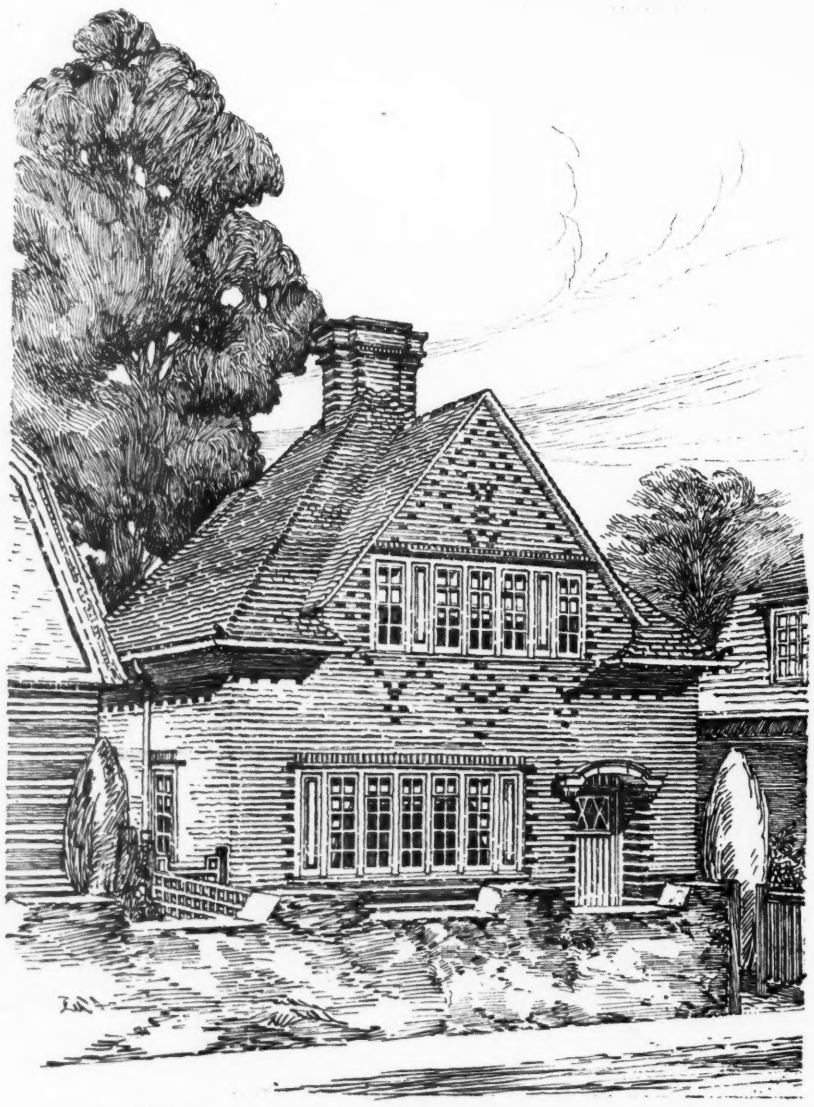
The prizes awarded for the best designs were then presented to the successful competitors by Mr. Burns.

The list of the awards was given in our last issue, when we gave the first prize design and others.

Gidea Park: House in Reed Pond Walk.
By Mr. E. Turner Powell, F.R.I.B A.



Gidea Park: Houses in Reed Pond Walk.
By Mr. M. H. Baillie Scott.



Gidea Park: House by Mr. Hubert S. East, A.R.I.B.A.

GENERAL NEWS.

Professional and Business Announcement.

Mr. W. H. Moon, architect and surveyor, 4, Parliament-street, Hull, informs us that, in consequence of the dissolution of partnership heretofore existing between Mr. John Abbott and himself, he has opened an office at the above address, where he will continue to practise as an architect and surveyor.

Lambeth Bridge.

The Finance Committee, London County Council, have agreed with the recommendation of the Improvements Committee that statutory powers be applied for in the session of 1912 to reconstruct Lambeth Bridge as a steel-arch bridge, 48 ft. wide, at a calculated cost of 220,000*l*., which is some 300,000*l*. less than the outlay upon the scheme contemplated last year. The present bridge was built in 1862-3, after designs by Peter W. Barlow.

Shakespeare Theatre Site.

Addressing a meeting held in Manchester recently in support of the movement to establish a National Theatre as a memorial to Shakespeare, the Earl of Lytton said a deputation from the promoters had waited upon the London County Council and asked for an option on the site of the County Hall in Spring-gardens as that on which the Shakespeare Memorial Theatre should be erected. They had been informed that their request had been favourably considered, and that the option had been granted.

Coronation Decorations.

The New Zealand arch which is being erected in Whitehall after designs by Mr. Frank Brangwyn, A.R.A., is about 40 ft. in width, giving a clear roadway of 22 ft.; the details will be generally symbolical of the products of the colony and its discovery by Captain Cook. For the command performance at the Opera on June 26 a scheme of decoration of the interior, as designed by Mr. Percy Macquoid, will be carried out in pink, white, and crimson for the auditorium, with festoons of fruit, green and gold wreaths along the balcony front. The vestibule and portico will be converted into a reception-room hung with masses of lilies, hydrangeas, and crimson rambler roses. Messrs. James Pain & Sons will carry out the decoration of the streets in Lambeth and Southwark, where masses of real flowering plants, with palms, will be banked around the bases of the masts and columns; canopies are to be erected in suitable positions along the route, and in Lambeth, Westminster Bridge-road will present the appearance of a floral arcade. Messrs. Whiteley, Ltd., will build the reception pavilion in Guildhall-yard for June 29, and there, as in the Guildhall, flowers will form a chief element of the decorations.

Statue to Bonington.

On one of the early days in May, in the grounds of the Municipal School of Art, a statue of Richard Parkes Bonington was unveiled at Nottingham. The life-sized statue of Carrara marble stands under a domed canopy supported by columns of Aberdeen granite. This memorial to one of Nottingham's most gifted sons has been presented to the city by Mr. Watson Fothergill, who, though not a native of Nottingham, has lived, and practised as an architect, in the city for forty or fifty years. The sculptor is Mr. F. W. Pomeroy, A.R.A., and he has represented the artist in an easy and graceful pose, standing, with brush and palette in hand, beside his easel.

Investiture of the Prince of Wales.

Mr. W. Goscombe John, R.A., has prepared the designs for the medal which will be struck in the Royal Mint to commemorate the Prince of Wales's Investiture at Carnarvon Castle on July 13. On the obverse of the medal, $1\frac{3}{8}$ in. in diameter, is a portrait of the Prince; on the reverse is a view of the castle from the sea, set between the dragon, and the Garter around the motto *Ich Dien*, all circumscribed with a legend in Welsh. Mr. W. Goscombe John has also made designs for the insignia—consisting of a gold coronet, wand, and ring—which will be worn during the ceremony.

Oxford University.

At the Encænia on June 28 the degree of D.C.L. *honoris causâ* will be conferred upon the Right Hon. Lewis Harcourt, M.P., Secretary of State for the Colonies and in 1905-10 First Commissioner of Works, and upon Mr. T. G. Jackson, R.A., Honorary Fellow of Wadham College.

A Model of Ancient Rome.

A model prepared by M. Bigot, a former *pensionnaire* of the French Academy in Rome, is deposited for exhibition in an apartment near the National Museum of the Thermæ, which is one of the vaults of the Baths of Diocletian. The model, formed of white plaster, and measuring about 30 ft. by 20 ft. on plan, presents a reconstruction of Rome as in the time of the two Constantines—the earlier half of the IVth century. The constituent pieces of the model are in blocks that can be detached the one from another; the total area displayed extends from the Tiber to the old Servian wall, and from the tomb of Cæcilia Metella on the Appian Way to the Porta Flaminia—the present Porta del Popolo—in the wall of Aurelian. M. Bigot devoted several years to research for authentic evidences of the planning and the constructional details for the model, and has succeeded in supplying a most valuable and interesting contribution to the study and knowledge of the topography of Rome sixteen centuries ago.

Royal Photographic Society of Great Britain.

An exhibition of some seventy photographs by the oil transfer process is now open free to the public at 35, Russell-square, the house of the Royal Photographic Society. The photographs are by Mr. Robert Demachy, Hon. F.R.P.S., of Paris. From the oil process he has devised a method of transferring the image to drawing paper, obtaining results thereby which resemble charcoal drawings and possess great strength and vigour. The subjects comprise figure studies, portraits, architectural pieces, and landscapes of great beauty. The exhibition will remain open daily, 11 a.m. till 6 p.m. (Saturdays 11 a.m. till 2 p.m.), until Saturday, July 15.

Sale of Builder's Plant.

As will be seen from an advertisement in another part of this issue, Messrs. J. T. Skelding & Holland, F.A.I., have received instructions from the Trustee, *re* B. E. Nightingale, to sell by auction, on the premises, Albert Works, Albert-embankment, S.E., on Tuesday, Wednesday, and Thursday next, the second portion of the builder and contractor's plant; the whole of the stone-working plant and machinery, stock of stone, and the stock of timber. As will be seen from the advertisement, other stock, plant, etc., will be sold.

The City and Guilds Institute.

In the Report of the City and Guilds of London Institute, 1910, it is recorded that only small numbers of students take advantage of the art department of the Technical College, Finsbury, but that the work done has reached a high level of merit. The South London Technical Art School, however, seems to be flourishing.

The Photographic Survey and Record of Surrey.

In the ninth annual report for 1910 of this body we read that during the past year 482 photographs have been received and recorded, this being a decrease of 108 on 1909. The photographs received are classified as follows:—Architecture, 177; art and literature, 235; anthropology and antiquities, 11; geology, 1; natural history, 1; topography and passing events, 57. In the architecture class prints have been contributed of Chertsey, Frensham, and Churt, places which have previously had no prints to their credit, and the district around Godalming has received attention by a member who has sent in twenty-six prints from this neighbourhood. Besides these, prints have been received of streets in old Croydon, of Farnham, Tadworth, Walton-on-the-Hill, Walton-on-Thames, Nutfield, Godstone, Bletchingly, Redhill, Thursley, Hindhead, Compton, Lingfield, Epsom, and Pirbright. There is still much more to be done in the south-western part of the county, as well as in many other isolated parts. Amongst these might be mentioned Chobham, Thorpe, Egham, Addlestone, Weybridge, Holmwood, and Puttenham.

The National Trust.

On May 27 Sir Robert Hunter, Chairman of the Trust Committee, opened the 34 acres on One Tree Hill, near Sevenoaks, which Dr. and Mrs. Hurry have purchased from Lord Derby for 1,000*l.* and have presented to the National Trust. The hill, crowned by a solitary beech-tree, commands a prospect ranging from Ashdown Forest and Crowborough to the South Downs near Folkestone. A local committee is formed to acquire, at a cost of 300*l.*, and commit to the Trust the chapel of the chantry of SS. John the Baptist and Thomas of Canterbury, in Buckingham, founded by Archdeacon Stratton in 1268, and latterly used for the Royal Grammar School. The Council have made an appeal for 250*l.* to enable them to acquire the old Priest's House in Muchelney, Somerset, which, it is stated, the Society for the Protection of Ancient Buildings are willing to put into structural repair.

England's Water Supply.

Mr. W. R. Baldwin-Wiseman, speaking before the Association of Water Engineers, at Buxton, recently, proposed the organisation of a small expert survey staff to collect data as to stream flow, well levels, floods, etc., and submitted that all the present powers should be vested in a single authority—the Hydrographic Board—in order to ensure the economic and systematic administration of water problems. Water-supply authorities were only responsible for taking about one-fifth of the total water used, and he mentioned the interesting fact that the railways of England and Wales last year used about 28,000,000,000 gallons, the breweries 15,700,000,000 gallons, and the distilleries 650,000,000 gallons of water, or the three trades together used enough water for the annual supply of about one-sixth of the population of the whole country with twenty-five gallons per head per day. The water interests of the whole country were stated to represent a capital expenditure of about 260,000,000*l.*, or about 50,000,000*l.* in excess of the rateable value of the whole country, of which the capital invested in water supply undertakings represented about 55 per cent.

Property Sales.

Amongst the properties recently placed in the market are the Stiffkey and Morston Estates, of 5,240 acres, on the coast near Walsingham, belonging to Lord Townshend, on which stands Stiffkey Old Hall, originally built by the Lord Keeper, Sir Nicholas Bacon, Bart.; Tong Castle, Salop, formerly the seat of the Pembridge and Vernon families, and latterly of the Durants, whose mansion, remarkable for its turrets, pinnacles, and cupolas, was remodelled in the XVIIIth century; Boveney Court, by the river-side near Windsor, at one time a grange of the nunnery at Burnham, founded in 1165 by Richard, Earl of Cornwall; Woodlands Park, near Leatherhead, skirted by the Mole, with a mansion built after designs by Mr. Rowland Plumbe, F.R.I.B.A., and pleasure grounds laid out by Messrs. Veitch & Sons; and the Crystal Palace, Sydenham, together with all the effects and buildings, including the schools of art, engineering, and electricity, and the grounds, extending over nearly 190 acres, planned by Sir Joseph Paxton. Mr. J. D. Lees, of Pownall Hall, Wilmslow, has just purchased Whittlebury Lodge, with 1,150 acres, near Towcester, Northants, a fine Elizabethan mansion, formerly a seat of the Lords Southampton.

St. Paul's Church, Finsbury.

This church was so greatly damaged by lightning in the storm last week that it is feared it will be necessary to pull down the entire fabric. The church was built in Bunhill-row seventy years ago after J. Goode's designs; Withers remodelled and refitted the interior in 1868, and a restoration was subsequently made by W. Butterfield.

CORRESPONDENCE.

Architectural Education, Registration, and Unity.

SIR,—Circumstances will compel my leaving England shortly for a few weeks, but before going I should like to make one effort to prevent the correspondence now taking place in your pages from becoming too much involved to be useful.

To me Registration and Education have always meant the same thing ever since I endowed the Society with its Registration policy during the correspondence in 1884, out of which the Society arose. It is to me the one means by which a reasonably competent degree of architectural education can be insisted upon in the case of every practitioner, and the older I get the more I deplore the want of compulsion, without which many capable men allow themselves to remain comparatively incompetent—content to practise without going further than, at times, one unsuccessful attempt at the Intermediate Examination. Examinations are tests which, I know well, cannot properly be applied in all cases, for in my own experience I have known sound men to break down seriously during preparation—not in any instance, however, men of highly artistic temperament. This is, as a rule, the mere pose of a malingerer, who is either lazy or finds it to be a profitable "swank." Will someone else, if Mr. Hiorns cannot, help me to find some other alternative test to that of the examination which can be properly applied and named in a Registration Bill?

But, after all, this is a detail, though I do not despair, as the solutions of several other equal difficulties have gradually been found

during the twenty-seven years that I have been working for Registration. Perhaps the right solution is a wide interpretation of the word "examination," allowing this to be, in the case of the "Final," highly specialistic or alternative, even to the production of complete and important designs only in an examination-hall, under the French "Beaux-Arts" conditions, in the case of the artistic genius.

I believe in compelling a high but alternative standard, and hold that by this means architecture will be advanced, while all reasonable grades of practitioners will be supplied to meet the needs of varying practice in different parts of the country.

All this would be accomplished under the existing Bill of the Society of Architects; but, as I have seen for a long while (not less than twenty years), the passing of that measure as it stands would mean the extinction of the Society. Practitioners would be content with their practising diploma; they might join the examining body (the Institute), but the Society would languish. Perhaps the Institute would languish, too!

May I suggest what seems to me to be the ideal to be aimed at? It would be the passing of a Bill identical with that of the Society in many respects, putting control for Registration purposes in the hands of a Council, appointed for five years at a time, partly nominated by the R.I.B.A. Council, partly by the Privy Council, and partly elected by all practitioners; giving administration and examination but no plenary power to the R.I.B.A. Council, and compelling membership of the Institute upon all on the register. On the other hand, the Institute would have members practising in the colonies, who would not be on the register, and have no right to practise in Great Britain and Ireland, and it would be highly desirable for these to be organised as members of great branches of the Institute, one for each of the great Dominions, and each having allied societies of its own. The time is already fairly ripe for forming such a branch in South Africa, and perhaps in Australia also, as I hope to ascertain before long.

The Bill might also do away with the distinctions between Fellows, Associates, and Licentiates, and make the Institute in the future a one-class body, as free from jealousies as is the Society—jealousies which have caused trouble so long as I can remember, and seem bound to continue to do so. It could also legalise the proxy vote of non-attendants on important matters—as no charter seems capable of doing—as the Companies Acts do, under which the Society works.

On these points, broadly, I hope discussion may arise, all endeavouring to really help. Personally, I am in no hurry. I have waited since 1884, and can continue to wait, if only something really good evolve for the benefit of succeeding generations of architects and of the art of architecture itself.

G. A. T. MIDDLETON.

Employment of Architectural Assistants in the Civil Service.

SIR,—I was pleased to see in your issue of May 19 the letter of "Nil Desperandum" voicing the grievances of the unestablished architects in the various departments of Government service. I think with him the time has come for these unestablished servants to combine and demand better treatment.

These grievances apply equally to unestablished Government servants of other professions, such as works foremen and engineers in the Office of Works and Post-Office.

Many trained and capable men enter the service with fair promises held out to them, but find before they have been many months in the service that little or no encouragement is given to the man who has taken pains to make himself proficient and to equip himself with the best practical and technical training. The best posts are filled by patronage, quite apart from the question of qualification.

A thorough inquiry into the various Government departments mentioned by "Nil Desperandum" would bring to light methods which can by no means be considered either just or businesslike, and would to a great extent explain the bad management and waste which go on in some of these departments.

VERITAS.

SIR,—I am pleased to see that you have allowed "X." to ventilate a grievance that undoubtedly does exist among the clerks of works employed by the Government. It is certainly an anomaly that the men who are trusted with the supervision of the execution of the work should not be "appointed," as the expenses of "maintenance" primarily depends on them.

It may, I think, be taken for granted that men who have been employed for a number of years have given proof of their ability and integrity in a situation exposed to temptation. They must also have shown tact in their relations with builders and builders' employees. These proofs are not obtainable under the present system of entrance to the "appointed" posts, and it is a fact that draughtsmen stand a better chance of securing them.

Y.

Plans of Buildings Illustrated.

SIR,—It seems to me in the interest of the profession that the time has come when your valuable paper should take a stand and refuse to illustrate plans without a north point on them.

I was not a competitor in the designs at Gidea Park, and thus have no grievance. The winning plans of which you illustrate in Classes I. and II. are without the necessary north point. Although the plan placed first in Class I. is a simple one, and does credit to its designer, if the assessors had to live in it the head of the house would make her voice heard on many occasions, especially during the hot weather such as we are now experiencing—if I am right in assuming the best sitting-room to be south, south-east, or south-west.

If the larder is north, then the best sitting-room is not a room where many sunny hours could be spent, and we as architects surely should set an example and give our clients something better than what one often finds in a house built by a builder for a speculation.

Your co-operation in this matter would, I am sure, be looked upon by the profession as an advance. The plans of schools and other buildings are often illustrated without the necessary adjunct.

W. BRAND.

Crittall Manufacturing Company *v.* The London County Council.

SIR,—Having noticed Mr. Greenop's letter respecting the recent judgment in the matter of The Crittall Manufacturing Company *v.* The London County Council, I should like, with your kind permission, to point out that this judgment is not altogether so unreasonable as Mr. Greenop imagines. I am perfectly sure that sub-contractors have no desire whatever that architects or employers should be hit in a matter of this kind, but from a long experience of such matters I may say that it is more frequently the sub-contractor who is hit than anyone else.

He is frequently asked to give a price for work, and when the contract is let out he finds himself requested to accept an order from a general contractor, who in some cases may not be altogether worthy of credit. I have known many instances where, owing to disputes which have arisen, payments have been delayed, the general contractor has failed, and the poor sub-contractor has lost his money.

It seems to me only reasonable that in cases of this kind the sub-contractor should look to his employer to see that he is properly paid.

If one of Mr. Greenop's suggestions was always carried out it would be fair to all parties concerned—namely, that a condition should be inserted in the building contract that no monies due to sub-contractors shall be included in any certificate of the architect to the general contractor until the receipted accounts in respect of same have been produced by the general contractor to the architect, and providing also that if the general contractor fails the building owner shall pay the sub-contractor direct within a certain period.

I consider this suggestion meets the case admirably and is fair to all parties concerned.

It is not reasonable that sub-contractors should be always asked to trust whatever general contractor an architect may select. The general contractor is frequently selected quite irrespective of whether he is worthy of credit or not.

J. S. B.

SIR,—We regret that your correspondent does not appreciate the difficulties of the sub-contractor's position. He says that the legal decision is serious for the architect and his client, but he must know that there are others to consider, and that the architect should hold the balances fairly to all parties to a contract, and it is to their credit as a body that they do this.

Unfortunately, there are too many who embark in the business of a builder without sufficient capital—or without any capital—and very little experience, and who obtain contracts at such absurdly low prices that they can only be carried through at a heavy loss, and failure is inevitable. Now, the timber, brick, and cement merchants in such cases will decline to provide material except for cash, or, if they agree to supply a first consignment, charge heavy prices to cover the risk. The sub-contractor, however, is expected to give credit for perhaps hundreds of pounds, when he well knows that a fair business risk would be not so many shillings. If he looks for a payment in advance he is told that it cannot be done till his work has been approved and certified by the architect. If then in his anxiety he hesitates to deliver and perhaps fix his work he is threatened by both the builder and architect, and when he performs his contract and, after delay, obtains his certificate, the builder under this iniquitous system receives the sub-contractor's money, and with it may perhaps pay some of his merchants, with a view to obtaining more supplies and a further amount on account of his contract, till sooner or later the crash comes and the sub-contractor is fleeced.

Neither of the courses suggested by Mr. Greenop appear to be satisfactory. Why should not the client pay the sub-contractor direct on a certificate? The work would generally be done more expeditiously, the client would obtain better value, the bullying, squeezing, and extorting of secret discounts from the sub-contractor would be abolished, and the respectable and reputable builder would get his chance of fair tendering for work. Our experience has been that this method works satisfactorily to all parties.

The alternative course suggested by Mr. Greenop does sound rather peculiar. Does your correspondent seriously propose that a sub-contractor should, with child-like faith, sign an agreement that he will supply his materials and labour to any Tom, Dick, or Harry who may at a later date obtain the contract, and look to him for payment? Would this agreement be equitable if the sub-contractor discovers that the builder's financial position is hopelessly involved and his reputation in the commercial world of the lowest? Would your correspondent not feel uneasy if it were also agreed that the architect's commission should be paid, not by the client, but by this builder out of monies received in the final payment? Has your correspondent never had it pointed out to him by sub-contractors that in the event of specified goods being supplied to a certain builder without being protected that payment would never be forthcoming?

Unfortunately, architects by their training and profession are debarred to a great extent from seeing the commercial side, in which the items "deeds of assignment" and "bankruptcy" figure so largely in the building trade. Respectable sub-contractors would not exist if left entirely to the mercies of many of the present-day so-called "builders."

SUB-CONTRACTORS.

The Trevor Estate Competition.

SIR,—May I point out that in your notice of the premiated designs for the Trevor Estate competition you have attributed to my design a feature which I did not intend?

I cannot think that "the public point of view," or any other one, would make a "good traffic road between Raphael-street

and Montpelier-square" a thing to be desired; and if that appeared to be my proposition I feel that you have treated it with undue leniency.

My plan will show that a circular carriage turn was provided so that no traffic need ever go through into Raphael-street, and I should have shown no break whatever in the wall along Lancelot-place had I thought that likely to be approved by the authorities.

H. S. GOODHART-RENDEL.

The Use of Asbestos Cement Slates and Sheets.

SIR,—In your issue of May 26 an article appeared in which various general statements are made relative to the uses and properties of artificial slates composed of asbestos cement, etc.

As this article is evidently written under a misapprehension as to the real merits of the process of manufacturing asbestos cement slates and sheets, and as the matter is one of considerable public interest, I trust you will, with your usual courtesy, give me this opportunity of replying.

It is suggested in the article that asbestos cement slates may not be used, or cannot be generally recommended, for dwelling houses, first, because if laid with double lap they will warp, and, secondly, because the coloured tile is not permanent in colour.

To this the manifest reply is, that asbestos cement slates manufactured to British standard as laid by us neither curl nor warp as is alleged.

It is also stated in the article that the ordinary slate is practically everlasting. In practice, however, we seldom see an ordinary slate roof intact for a whole year. The ordinary slate contains more often than not pyrites and other foreign matters, filling in the inherent faults or fissures, which on exposure break away, and repairs are incessant.

In British standard asbestos slates we have a roofing material unaffected by weather, void of fissures or faults, and a roofing material which, unlike all others, improves instead of deteriorates with age.

The question as to asbestos slates not always retaining their colour is purely one as to the source of supply. The writer of the article suggested "fading" and "patchiness" in asbestos slates, and alleges the presence of free lime and magnesia as the cause. The reply to this is that neither magnesia nor free lime are found in the material constituting asbestos cement slates to even the same proportion as it is found in the Portland cement of the standard makers in England.

In no case could such alleged free lime and magnesia explain fading, if any, for the colouring matter of standard asbestos slate is, in point of fact, unalterable.

It is suggested in the article that architects should obtain a guarantee that these slates when used should be as described. The writer says he is unaware of any proper standard, presumably because certain foreign manufactures may contain little or no asbestos, and because the cement used by the foreigner may be a poor quality.

Wittingly or unwittingly, an injustice is thus done to the industry as a whole on flimsy premises, and because some foreign firms in this country seek to hide their identity by assuming quasi-British and adopted names. But it is hardly fair to the one British firm, viz., Bell's United Asbestos Co., Ltd., actually manufacturing in this country that wholesale statements as to warping, and as to the want of a British standard—which is known not only to the building trade as a whole, but to the public departments, engineers, architects, and others—should be printed.

The asbestos cement slate industry, the author of the article informs us, is gradually becoming as well known in this country as it is on the Continent, where its success is unquestioned.

This success is undoubtedly due to the fact that the standard quality asbestos cement roofing tile has never failed on the Continent, and it is equally true that the British standard quality and specification, 3·8 mm., or about 5-32 in. thick, as adopted by the Crown Agents for the Colonies and other British Government departments, has never failed in England. The introduction of the material here marked an epoch in building construction and a new birth in the matter of fire protection.

The fire-resisting properties of the material are due to the large use made of asbestos in its preparation. Asbestos is rightly accepted as the most incombustible of materials, and its presence prevents the tiles from shattering when exposed to high temperatures, and constitutes the reinforcing elements, there being thirteen layers of it within the thickness of each tile.

A history of peculiar interest is connected with the introduction of asbestos cement tiles and sheets into England. They were originally manufactured on the Continent under what were known as the Hatschek patents, and in all probability their manufacture would still be carried out exclusively abroad had it not been for the Patents Act which Mr. Lloyd George, then President of the Board of Trade, carried through the House of Commons in 1907. The patents in question were the first to come before our courts of law under that Act, and after exhaustive hearings the decision was given against those who endeavoured to restrict the production of asbestos cement tiles and sheets to foreign countries.

There appears to have been not the shadow of a doubt as to the justice of revoking the patents and of the refusing of the Comptroller to suspend the revocation, and hence the establishment of works in England producing asbestos cement tiles and sheets known as the British standard.

The factories established in 1910 in England by this company, and now being extended, are equipped with modern machinery to meet the requirements of the British building trades, and no architect or engineer will gainsay the fact that in mechanical strength, finish, and economy British standard asbestos tiles constitute one of the most enduring forms of indestructible and practically everlasting roofing material.

Will you allow me to suggest that all architects should get their guarantee for durability from a British firm of repute, whose guarantee is worth face value. Such firms see to it that the standard quality and quantity of asbestos are used, and that the quality of the Portland cement is unquestionable. Architects should also insist that the guarantee should be for a tensile strength ten times that of the best Portland cement, and for a specific thickness of 3·8 mm.

The remarks of the writer of the article on the subject of asbestos cement sheeting are to a large extent void of the elements of professional and commercial practice, for it is unthinkable that architects would pass sheets varying, as is suggested, so very much in thickness as to produce unsightly joints. No doubt architects who know their business will continue to see the advantages of the sheets for ceilings and for the lining of the inside and outside of wood and steel-framed buildings, and it is their business to preclude the possibility of their specification being bilked.

This material is one of the most successful innovations of recent years, and has led to the introduction of asbestos slates and sheets as roofing and building material in place of ordinary tiles and natural slates for every class of building.

There is no other artificial slate or roofing tile, or natural slate, and no other permanent roofing material, which even approximates to the British standard asbestos tile in mechanical strength, finish, or economy.

H. A. BELL,
Chairman, Bell's United Asbestos Co., Ltd.,
Southwark-street, S.E.

LEGAL COLUMN.

Corporations and Contractors.

The case of Robinson and Another *v.* Urban District Council of Beaconsfield, noted, the *Builder*, March 31, has been carried to the Court of Appeal. The plaintiff, the owner of a partially-developed building estate, was suing the defendant Council for trespass, and for so disposing of sewage on his land as to cause a nuisance to the plaintiff or his tenants. The defendants, under sect. 42 of the Public Health Act, 1875, had contracted with one, Hook, for the emptying of the cesspools in their district. In performing this duty the contractor had, on some occasions, discharged the sewage on the plaintiff's land, and the defendants did not seek to justify this action on the part of their contractor; they only disputed their liability for his acts in this respect. The Court of Appeal affirmed the finding of the Court below that the defendants were liable, basing their decision on the ground that the contract contained no provision where the sewage taken from the cesspools was to be deposited, being merely to empty and cleanse the cesspools, and therefore the contractor undertook no duty as to the place of deposit and the Council remained liable so to deposit the sewage as not to cause a nuisance. The decision of the Court of Appeal, like that of the Court below, does not decide the more difficult question of what would have been the position of the Council had the contract also contained provisions for the disposal of the sewage by their contractor.

Nuisance to Householders.

In the recent case of Ffoukes *v.* Salisbury-Jones and others, the plaintiff was tenant for a term of years of Berkeley Cottage, John-street, Berkeley-square, and the first defendant was owner of a house in Berkeley-square which was separated from the plaintiff's property by a party wall. This defendant was employing a firm of builders, the other defendants, to carry out certain extensions of the premises, and the plaintiff complained that no notice had been duly given under the London Building Act, and applied for an injunction and damages in respect of dust and broken building materials which she alleged were a nuisance, from which she had suffered inconvenience and been put to expense. Mr. Justice Parker, in giving judgment, stated that a small non-compliance with the statutory provisions of the London Building Act, 1894, would not by itself be a ground for giving damages, but it had some bearing on the second ground of claim, that for injury and personal inconvenience from nuisance. He found that during the process of demolition the plaintiff's house had been rendered practically uninhabitable, and that notice should have been given whatever the strict legal obligation to do so before commencing operations might be. The judge also found that reasonable skill and care had not been taken in carrying out the operations, and he awarded the plaintiff 40*l.* damages. The Court followed a decision, Harrison *v.* Southwark and Vauxhall Water Company (1891), which will be found commented upon with other recent cases, the *Builder*, August 20 last. The rule laid down in that case and now again approved is that where buildings have to be demolished no action will lie for nuisance (even be the inconvenience and annoyance such that if caused wantonly or likely to be permanent there would be a cause of action for nuisance), unless an absence of reasonable skill and care in avoiding nuisance can be proved on the part of the defendant.

New Streets.

In the recent case, The King *v.* Corporation of Tynemouth, the Corporation, which was the urban sanitary authority in which were vested the powers conferred by the Public Health Act, 1875, of approving plans for new buildings, had refused to approve certain plans which included a new street, and on the application of the owner of the building estate in question a rule *nisi* for a *mandamus* had been granted that the application should be considered. It appeared that one of the new streets, which, to comply with the by-laws, was to be of a width of 40 ft., lay throughout its length through a field which, by a covenant of title, the owner of the building estate was compelled to keep open and only use as arable or pasture land or as lawn shrubberies or gardens. The Court discharged the rule *nisi*, holding that in the circumstances the Corporation were entitled to disapprove the plans The case is at present only very shortly reported in the "Weekly Notes."

LAW REPORTS.

British Appeal against a German Patent.
William Owen Travis and Edwin Ault *v.* Heinrich Scheven.

A CASE of some importance decided on April 3 last by the Cancelling Division of the Imperial German Patent Office was that raised by the application of Dr. Owen Travis, of Hampton, and Mr. Edwin Ault, of Westminster, as plaintiffs, against the firm of Messrs. Heinrich Scheven, of Dusseldorf, who had purchased from Dr. Imhoff the German patent No. 187,723 of May, 1906, relating to improvements in sewage purification, and therefore were cited as defendants.

The plaintiffs based their case for the cancelling of the German patent—so far as concerned the second patent claim—mainly upon their own British patent No. 11,073 of 1903. With regard to the first claim of the defendants' patent, it was pointed out that this merely stated a problem without a solution, the latter being given only in the second claim.

After a public hearing under the presidency of the Director, Dr. Damme, the Court decided that it was not possible in the face of the British patent to uphold even the second claim of the attached patent in the form submitted, and that, on the contrary, it became necessary to alter the wording of this claim so as to bring out the differences between the installations according to the rival patents.

In view of the decision given it appeared fair to divide the official costs of the proceedings between the parties in equal shares, and that each party should pay its own non-official costs.

According to sect. 33, sub-sect. I., of the Patent Law of April, 1891, an appeal is permitted to the Imperial High Court of Justice if lodged not later than June 29 next.

EDITORIAL SUMMARY

"Irish Architecture" is the title of our leading article this week.

"Notes" (p. 706) include: "Coronation Stands and the Influence of Architecture"; "The New Science Museum Site"; "An Essay in Criticism"; "Architects and Clerks of Works in the Civil Service."

An illustrated article is given on p. 706 on the "Victor Emmanuel Monument, Rome."

Some further notes on the Gidea Park House and Cottage Competition will be found on p. 709. Some more prize designs are given.

In our Correspondence Columns (p. 713) letters will be found on "Plans of Buildings Illustrated"; "Employment of Architectural Assistants in the Civil Service"; "Crittall Manufacturing Company *v.* London County Council"; "Architectural Education, Registration, and Unity"; "The Trevor Estate Competition"; "The Use of Asbestos Cement Slates and Sheets."

Our Legal Column (p. 715) includes notes on "Nuisance to Householders"; "New Streets"; "Corporations and Contractors."

The Monthly Review of Construction (p. 717) contains: "School at Seaton Sluice, Northumberland"; "The Need for Horizontal Tie-rods in Arched Timber Roofs"; "A Retaining Wall in Lombard-street, London"; "Flat Slab System of Reinforced Concrete"; "New Hospital for the Malverns"; and Notes.

In the Building Trade Section (p. 723) will be found: "The National Insurance Bill"; "Exhibits at the Glasgow Exhibition"; "Mediæval Carpentry"; "Metal Ladder Tape Lathing"; "Projected New Buildings in the Provinces."

An article on "The Building Trade Exhibits at the Glasgow Exhibition" appears on p. 723.

An abstract of a paper on "Cottage Homes," by Mr. E. C. H. Maidman, is given on p. 726.

An abstract of a paper by Mr. J. Jerman on "Ventilation," read before the recent Exeter meeting of the Royal Sanitary Institute, is given on p. 727.

MEETINGS.

SATURDAY, JUNE 10.

Architectural Association.—First summer visit, to Nashdom, near Taplow. Paddington, 2.15 p.m.

Institution of Municipal Engineers.—Visit to the works of Messrs. Aveling & Porter, Ltd., Rochester, Kent.

Edinburgh Architectural Association.—Joint visit to Glasgow with Glasgow Institute of Architects.

Northern Architectural Association.—Meeting at Sunderland. Arrangements have been made for visiting the following works—(1) St. Gabriel's Church, Kayll-road (architect, Mr. C. A. C. Greene); (2) Water Company's new offices, John-street (architects, Messrs. W. & T. R. Milburn).

MONDAY, JUNE 12.

Royal Institute of British Architects.—Business and ordinary meeting—(1) Election of Council and standing committees, election of members; (2) Mr. Ernest Richmond, on "Building in Egypt." 8.30 p.m.

Incorporated Clerks of Works' Association (Carpenters' Hall, London-wall).—Paper by Mr. F. T. Cole on "Garden Designing." 8 p.m.

TUESDAY, JUNE 13.

Manchester Society of Architects.—Visit to Wilmslow Parish Church, Hawthorn Hall.

WEDNESDAY, JUNE 14.

Royal Archæological Institute (in the Apartments of the Society of Antiquaries, Burlington House, Piccadilly, W.).—"Notes on the Heraldic Jall or Yale," by Mr. G. C. Druce. With lantern illustrations. 4.30 p.m.

THURSDAY, JUNE 15.

Society of Antiquaries.—8.30 p.m.

FIFTY YEARS AGO.

From the *Builder* of June 8, 1861.

On the Restoration of Ancient Buildings.

THERE are many points on which a restorer should take special pains to conform to the old example. Wherever old levels of floors can be discovered they should be most carefully copied. Old levels are generally well arranged, and not unfrequently with great peculiarities. As, for instance, the laying a floor on a gradual slope up from west to east. Then, again, the local fashion as to such seats, etc., in churches, is generally preferable to any other, especially where any example exists in the building under restoration which is at all worth repetition. Painting on walls should, generally speaking, be carefully cleaned, and where it consists of figures and subjects should not be restored. If the work be rude, it can hardly be restored in a rude fashion without being absurd; if its character be good, then it is a pity to touch it, lest we destroy any of the characteristic touches and fire of the old artist. There is one common reproach in the mouths of those who have no feeling for our national antiquities to which a few words of answer are necessary. They assert that all this work of restoration is unreal and untrue, inasmuch as both our religious life and our civil life are quite unlike what they were; they say that the old buildings of each class are consequently quite unfitted for our use on religious and on utilitarian grounds. In short, Lord Palmerston's "Civis Romanus sum" is interpreted literally by them, as it is by his lordship, to mean that Roman architecture is the only art fit for English citizens, and that we ought no longer to put up with any revival of English art. The charge is ingenious, but untrue. Take our churches—and in what respect is it necessary to alter them materially for modern use? Is it possible that this English nation, which prides itself so much upon its practical character, should be so unpractical as to go on, year after year, ever more and more actively at work, restoring and refitting old churches, if those old churches are not the most convenient and the most suitable buildings that could be devised for their sacred purposes?

LONDON COUNCILS.

Bermondsey.—Plans have been passed for Mr. J. S. Heath, Mitre-court, Temple, E.C., on behalf of Mr. J. H. Heath, 142, Grange-road, Bermondsey, S.E., for twelve maisonettes, Cadbury-road; also for Mr. H. Cubitt, 227-8, Strand, W.C., for additions to 281, Rotherhithe-street, S.E.

Camberwell.—Plans submitted by the Borough Engineer for the flooring over of the second-class swimming-bath, providing lavatory and cloak-room accommodation, and other small works at Dulwich Baths at an estimated cost of 1,117*l.* have been approved.

Croydon.—The County Council have accepted, subject to the usual sanction, the tender of Robert McAlpine & Sons at 3,800*l.* for the construction of the proposed subway at Norwood Junction. They have further accepted the tender of the Improved Wood Pavement Company, Ltd., for the supply of 500,000 creosoted wood-paving blocks at 6*l.* 1s. 6d. per 1,000. The following plans have been passed:—Mr. A. Carter Pegg, L.S.W. hall, Sylverdale-road; Mr. C. S. Banks, Oakfield-road, eleven houses, Melrose-avenue; Mr. W. B. Coomber, 65, Pembdevon-road, fifteen houses, Tugela-road, four houses, Teevan-road, and six houses, Leander-road; Messrs. Withers & Meredith, London, E.C., Sunday school room, rear of Wesleyan chapel, Brighton-road; Mr. B. W. Adkin, London, S.W., four houses, Morland-road; Mr. A. Latham, 100, High-street, eight houses, Sydenham-road, N.; Mr. G. A. Gale, London, S.W., ten houses, Melrose-avenue; Mr. D. Weightman, 78, North-end, ten houses, etc., Richmond-road.

Lambeth.—The following plans have been passed:—Mr. John Wingrove, six houses, Halliwell-road, Cornwall-road, Brixton-hill; The Salisbury, Semley, and Gillingham Dairies, Ltd., offices, etc., site of Nos. 3 and 4, Grove-cottages, The Grove, Vauxhall; Mr. J. E. Beaumont, on behalf of Messrs. Pickford, Ltd., building, Hackford-road, Brixton; Mr. A. R. Westworth, on behalf of Mr. T. Martin, building, Wolfington-road; Mr. S. A. S. Yeo, re-erection "Surrey Arms" public-house, Wilcox-road, South Lambeth.

Leyton.—The sewer in Vicarage-road is to be relaid, at an estimated cost of 130*l.* The following plans have been passed:—Mr. W. A. Hutchin, club-room, rear of Ashville Hall, Ashville-road; P. Cornish, altering skating rink into electric theatre, Kirkdale-road; Mr. W. H. Franklin, nine houses, Cromer-road.

Southgate.—The Surveyor has been instructed to prepare an amended scheme for widening works on the north side of Fox-lane. Several streets in New Southgate and Bowes Park are to be made up. Plans have been passed for Messrs. J. Bruton & Sons to erect a new steel roof at the Enamel Works, Hedge-lane, Palmer's Green; also for the Southgate and District Gas Company for a district meter-house at the corner of Green Dragon-lane and Wades-hill, Winchmore Hill.

Watford.—The Surveyor has been instructed to carry out channelling work in a portion of King-street. The following plans have been passed:—Messrs. M. A. Sedgwick & Co., alterations to the Crown Inn, High-street; Messrs. Benskin, Ltd., alterations and additions to the Brewery, High-street; International Stores, Ltd., alterations to No. 219, St. Alban's-road; Messrs. Freeman, Hardy, & Willis, alterations to No. 99, High-street; additions to St. John the Evangelist Church, for the churchwardens; Watford Temperance Council, temperance hall, St. John's-road; Mr. T Callum, seven houses, Oxhey-avenue; Mr. J. W. Dudley, three houses, Balmoral-road. Plans have been lodged by Mr. A. B. Ibbott for a mission hall, Upper Paddock-road, also for the International Tea Stores, for alterations to No. 98, High-street.

ILLUSTRATIONS.

Monument to Victor Emmanuel, Rome.

OUR illustrations of this work are given in connexion with an article on the monument which appears on page 706.

Gorse Hill, Hook Heath, near Woking.

THIS is a new dwelling-house for Mr. G. J. Ingram, the contractor being Mr. W. G. Tarrant, of Byfleet. It is of brick coated with fine sand-faced cement rendering, Medusa cement being used for the window architraves and mouldings, etc. The entrance porch is in Portland stone. The roofs are covered with red, handmade Hazelwood tiles. The forecourt and western terrace are fenced with English oak lattice work, and posts of oak, brick, and stone. On the western side is a loggia with a half elliptical front, whose roof forms an open terrace or balcony, and is supported by coupled columns of Portland stone.

A lodge, stables, and a garage are being built to the southward of the house, which stands high, and commands beautiful views. Amongst the sub-contractors are—For electric lighting, telephones, etc., Mr. H. M. Leaf, of Westminster; for wrought-iron balcony railings and staircase ramp, etc., Messrs. F. Clubb & Son, of Hampstead; and Messrs. Wainwright & Waring, of Chiswick, for metal casements and glazing; for chimneypieces, hardwood doors, etc., Messrs. Frank Collinson & Co., and Messrs. S. Elliott & Sons, of Reading; for plasterwork, Messrs. Geo. Jackson & Son and Mr. L. A. Turner; for stonecarving and modelling in cement, Mr. T. E. Jago; for door furniture, etc., Messrs. N. F. Ramsay & Co., of Westminster.

Mr. Edward P. Warren, F.R.I.B.A., is the architect.

The "Ship" Institute for Deep Sea Fishermen, Newlyn, Cornwall.

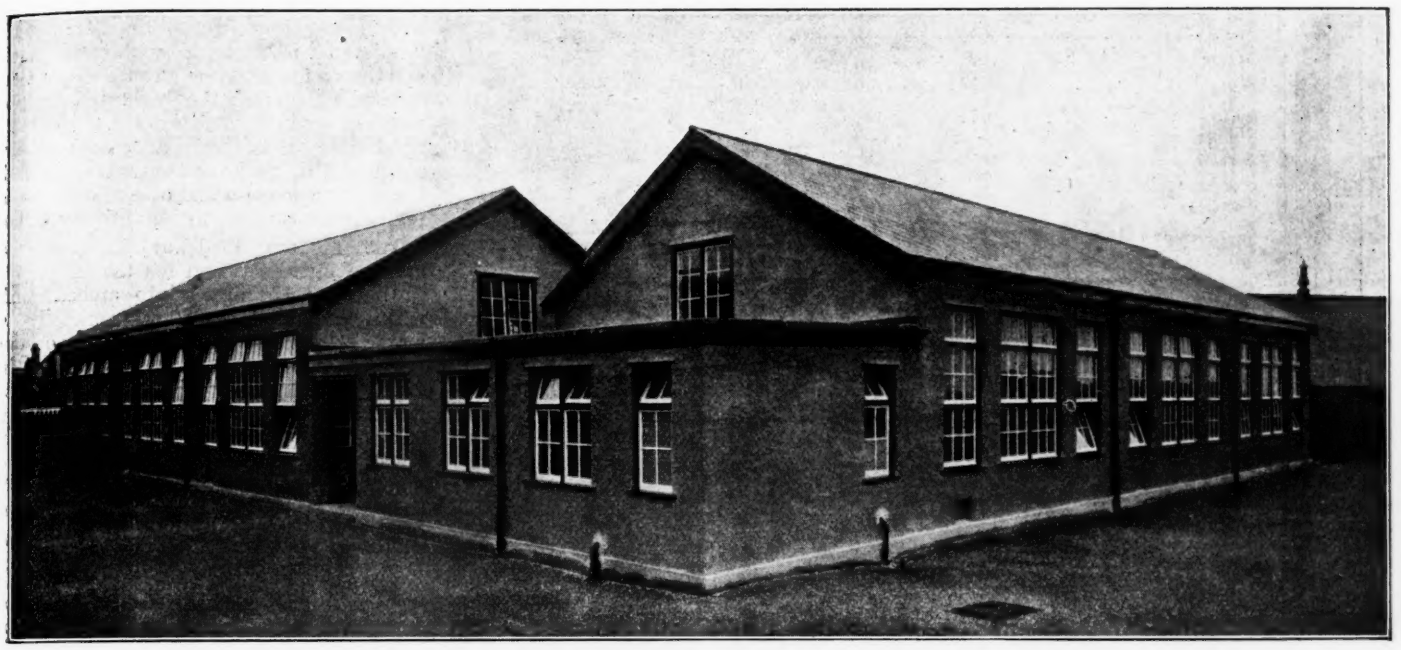
THIS building, the gift of Miss Bolitho, of Penzance, to Newlyn, is to be completed in November, when it will be handed over to the Royal Mission to Deep Sea Fishermen. It is happily situated between the quay and the little river which washes its eastern side. It will form a sort of club for the fishermen, native and foreign, who frequent this busy fishing port, and will be built solidly in the local granite, and roofed with gray Delabole slates.

The chief room for general assembly is the common-room, which, with its bar, occupies most of the ground-floor. Overhead there will be a meeting-room, a writing-room, several cubicles and bedrooms, bathrooms and a lavatory. The caretaker's dwelling, with kitchens, office, and yard, occupy the southern end of the narrow site, which has proved to be only just large enough for the purpose.

The contract, as a result of competitive tenders, has been awarded to Messrs. W. E. Blake, Ltd., of Plymouth. The walls of common and meeting rooms, entrance hall and passages, are to be lined, for from 6 ft. to 7 ft. high, with vertical oak boarding. The gilt ship on the weather-vane is being carried out by the Newlyn Industrial Class. Amongst the sub-contractors are Messrs. Wainwright & Waring for casements and leaded glazing, Mr. Gilbert, of Newlyn, for plumbing, etc., and Mr. L. A. Turner for modelling and stone carving.

Mr. Edward P. Warren, F.R.I.B.A., is the architect.

MONTHLY REVIEW · *of* · CONSTRUCTION



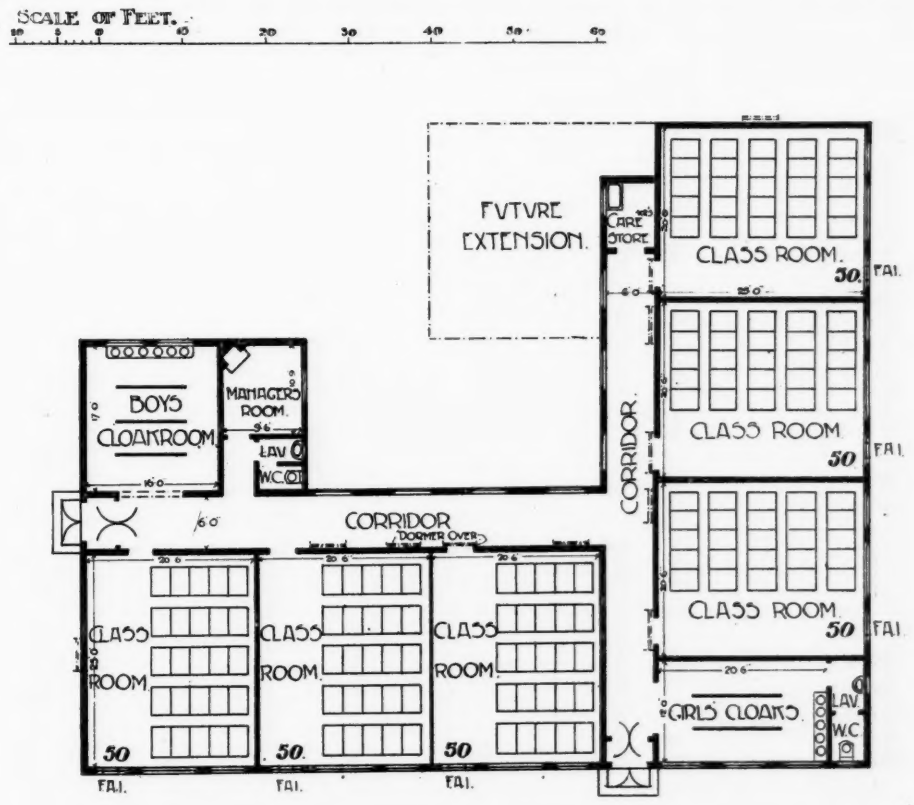
Seaton Sluice School.
Mr. G. Topham Forrest, Architect.

SCHOOL AT SEATON SLUICE, NORTHUMBERLAND.

THE illustrations of this school may be of interest in view of the fact that the form of construction adopted is referred to in the report now published of the Departmental Committee appointed by the President of the Board of Education in February, 1910, to investigate the possibility of reducing, with due regard to their suitability and durability, the cost of school buildings by the use of novel materials and methods of construction.

The school has been erected at the village of Old Hartley or Seaton Sluice, on the east coast of Northumberland, about 10 miles from Newcastle-upon-Tyne. Early last year the existing mixed school was entirely gutted by fire, and it became necessary to erect a building to accommodate about 300 scholars. Section 18 of the Education Act, 1902, provides that in county areas a proportion of from half to three-fourths of all capital expenditure on elementary schools must be borne by the area served by the school, and as the parish of Hartley, which the school is intended to serve, is of very low rateable value, the population consisting chiefly of miners employed at collieries outside the parish, an application was made to the Board of Education for permission to erect a wood and iron building. The Board, however, were only prepared to recognise a wood and iron building for a very limited period pending the erection of a permanent structure, and suggested that a more comfortable and satisfactory building than that proposed should be erected, which would at the same time be less expensive than of stone or brick, and invited the architect to the local education authority to discuss the matter with them. A conference was ultimately held in London between the departmental officials and the officials of the Northumberland Education Committee, and as the outcome of such conference and a visit to the Harrow Sanitorium, designed by Mr. J. Osborne Smith, the school was designed by the architect to the Education Committee, and the plans submitted to and approved by the Board.

The following is a description of the school: The school is a timber-framed building, with slab casing, ferro-concrete foundations, reinforced with ¾-in. steel rods and expanded steel, as shown in details, 4½-in. × 3-in. framing, fixed to foundation, with holding-down bolts at angles, and about 8 ft. apart around the building. Angle posts of 7 in. × 4 in. framed to horizontal timbers fixed to all external angles, doorways, etc., ordinary framing 4½ in. × 3 in., with 4½ in. × 2 in. alternate studdings, 9-in. × 3-in. air gratings (glazed ware) fixed at the base of all framing, and holes bored through timbers for the circulation of air throughout the whole of the framing. Bituminous dampcourse below the sole piece of the framing, 1¼-in. pitch-pine block floors laid to cement margins having concave angles throughout classrooms, etc. Cement concrete floors to corridors and cloaks granite faced. White glazed lavatory basins to cloaks, Gibbons' hat and coat standards and hooks to cloak-rooms. Heating on the "Hornet" system by Messrs. Emley & Sons; 2-in. "Fram" slabs fixed to framing on outside rendered over surface with cement mortar floated to an even surface, and rough cast with a mixture of slag and pea gravel, 1-in. internal "Fram" slabs nailed to framing floated and skimmed with washed haired lime and putty, and finished with putty



PLAN.
Seaton Sluice School.

Seaton Sluice School.
Mr. G. Topham Forrest, Architect.

and plaster throughout. A dado, 3 ft. 6 in., is formed with Portland cement back and finished with Keene's cement face-trowelled smooth. The roofs are boarded with clean redwood F. and G. boarding, and slated with asbestos tiles laid diagonally and fixed with copper rivets. The flats are covered with Limmer asphalt in two-coat work, with skirting against walls, etc. The dormers are covered with sheet lead, and also spandril cheeks to same. A cement plinth is formed around the base of external "walls" to form a finish for the rough cast work.

The cost of the school works out at about 5½d. per foot cube for the building alone, but the fact must be taken into consideration that the building internally is finished exactly similar to one of brick or stone, and that owing to the exigencies of the site and bad drainage arrangements it was found necessary to instal an accelerated hot-water installation. Other extras were also incurred, so that, provided a school of this description was built on a suitable site, it should be possible to erect a building which would work out at 5d. per foot cube, or even under that figure. The school is designed to accommodate 300 scholars, and the price per head works out at 6*l.* 16s. 6d., but to this price must be added 525*l.*, being the cost of out-offices and boundary walling, which are of brick and stone similar to a permanent building, and also the asphalted playgrounds and drainage. The school is designed on the pavilion type of plan, but without a central hall, and the following are the names of the various contractors:

Main building: The "Fram" Construction Company, Victoria-street, London.

Heating installation on the "Hornet" system: Messrs. Emley & Sons, Newcastle-on-Tyne.

Wood block flooring: The Acme Wood Block Fooring Company, Gainsborough-road, Victoria Park, London.

Hardware and cloak fittings: Mr. James Gibbons, Wolverhampton.

Out-offices, boundary walls, and playgrounds: Mr. J. Pelton, North Shields.

Mr. John Nicholson, clerk of works.

THE NEED FOR HORIZONTAL TIE-RODS IN ARCHED TIMBER ROOFS.

BY PERCY J. WALDRAM, F.S.I.

IF the fine arched hammer-beam roofs at Eltham, Westminster, Penshurst, or any of the great halls of the XIVth or XVth century had been constructed in the year of grace 1911 it is very improbable that they would have been entrusted to the slender graceful buttresses which have carried them safely for nearly 500 years. It is still more probable that they would have been provided with rows of horizontal tie-rods; possibly "relieved" in the centre with screw shackles and fussy meaningless wrought-iron scrolls, effectually ruining the high, uninterrupted vista of arched roof timbers, inducing an uncomfortable feeling of dangerous weakness economically met, and generally recalling the appearance of a bad case of dilapidations temporarily secured by the County Council.

The modern tendency for excessively massive buttresses and for the introduction of horizontal tie-rods into arched roofs—which ought to be (and generally are) amply efficient without them—may originate with their designers, or it may be the fault of the authorities whose approval has to be obtained. In any case, it is due to a want of appreciation, on the part of one or both, of the true capabilities of such roofs, and can generally be traced to the undiscriminating habit of regarding every problem in roof design as a simple exercise in graphic statics.

The Tudor builder, fortunately for us, lived before the publication of text-books describing the fascinating labour-saving possibilities of stress diagrams. He based his estimate of the capabilities of his timbers upon practical experience and was not afraid to trust his constructive instinct. Nowadays, however, it is difficult to imagine any self-respecting draughtsman starting the ½-in. details of a large arched roof until he has drawn, or at least believes he has drawn, a complete stress diagram of the skeleton truss; and he would determine the sizes of all the timbers mainly with regard to the conclusions drawn from the result.

Unfortunately it is very seldom recognised that the usefulness and accuracy of such diagrams are largely discounted by the great fundamental fallacy which underlies all solutions by graphic statics, viz., the erroneous assumption that all intersections of members are frictionless points, instead of being, as they generally are, particularly stiff and rigid. In fact, in wooden roofs they consist in almost every case of continuous unjointed timbers *stiffened* by the connexion of another member and strengthened in addition by bolts and straps.

In iron and steel roofs this fallacy usually results at most in comparatively insignificant errors on the side of safety, but in arched wooden roofs, if unappreciated, it can induce construction which borders on the ridiculous.

As will be seen in Figs. 1 to 3, hammer-beam, braced collar and similar roofs are merely elaborations of the simple collared couple shown in Fig. 1 (*a*).

To a draughtsman accustomed to ascertain roof stresses solely by graphic statics applied to a *skeleton* diagram there is an almost irresistible temptation to assume that because the points *xx* are apparently unbraced, therefore they must be regarded as flexible, and that there is in consequence a dangerous tendency to push out the walls at *A* and *B*—a tendency which must be resisted by heavy walls and buttresses, or by tie-rods, or both. Having assumed the points *xx* to be flexible, then the logical conclusion follows that the outward thrust must consist of the horizontal resultant of the compression in *xA* or *xB* acting in conjunction with the reaction at *A* or *B*, as in Fig. 1 (*b*). In other words, that the truss exerts *as much thrust as it would if the horizontal collar were removed!* Add to this the not unusual assumption of a 50-lb. wind (which is a typical West Indian hurricane capable of levelling probably half the buildings and all the trees in England), and it is not difficult to understand why village halls cost so much on account of the heavily buttressed walls, and why modern

Seaton Sluice School.
Mr. G. Topham Forrest, Architect.

church roofs, of types which have stood for centuries, are so frequently disfigured by rows of horizontal ties.

Had the problem, however, been approached with a common-sense regard to the limitations of graphic statics it would have been seen that the points *xx* are not joints at all, but are the fixed ends of two inclined

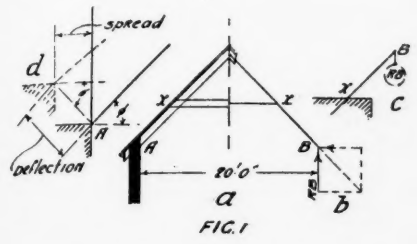


FIG. 1

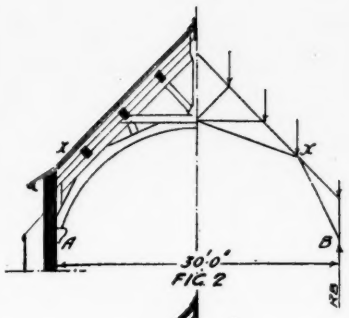


FIG. 2

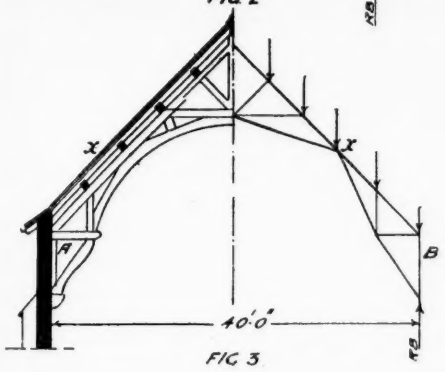


FIG 3

reversed cantilevers upon which the rest of the roof sits. The nature of the stresses on one of these cantilevers will be more easily seen if it be reversed, as in Fig. 1 (*c*).

These cantilevers will, of course, deflect under load and the truss feet *AB* will consequently open out, *but only as far as that deflection allows them to.* When that deflection is complete they are as rigid under the load as a roof directly braced. It will be found that with roofs properly constructed, with timbers of the ordinary size, this outward spread is extremely small. In fact, it is practically no greater, and may be even less, than the very small outward movement which would be permitted by the elastic stretch in a direct horizontal steel tie under ordinary working stress.

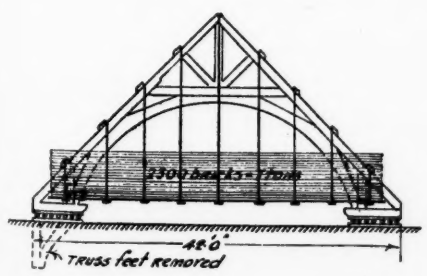


FIG 4

The bending movement due to the reaction at *A* or *B* tends to set up fibre stresses at *xx*. The resulting deflection (Δ) of the truss foot in a cantilever of uniform section of length L and depth d under the influence of a fibre stress (f) upon material possessing an elastic modulus (E) would be $\frac{2\,fL}{3\,E} \times \frac{L}{d}$. In timber roofs or ordinary construction the depth (d) would be at least $\frac{L}{8}$, and the extreme fibre stress which would be worked in determining the section at *x* would not exceed 10 cwt. per square inch. Taking E at 10,000 cwt. for average fir, the deflection Δ of the cantilevers *Ax* and *Bx* would be

$$\Delta = L \times \frac{2 \times 10 \times 8}{3 \times 10{,}000} = \text{say } \frac{L}{200}.$$

The length (L) would be about one-quarter of the span *AB*, so that the deflection of the cantilever would be about $\frac{AB}{800}$.

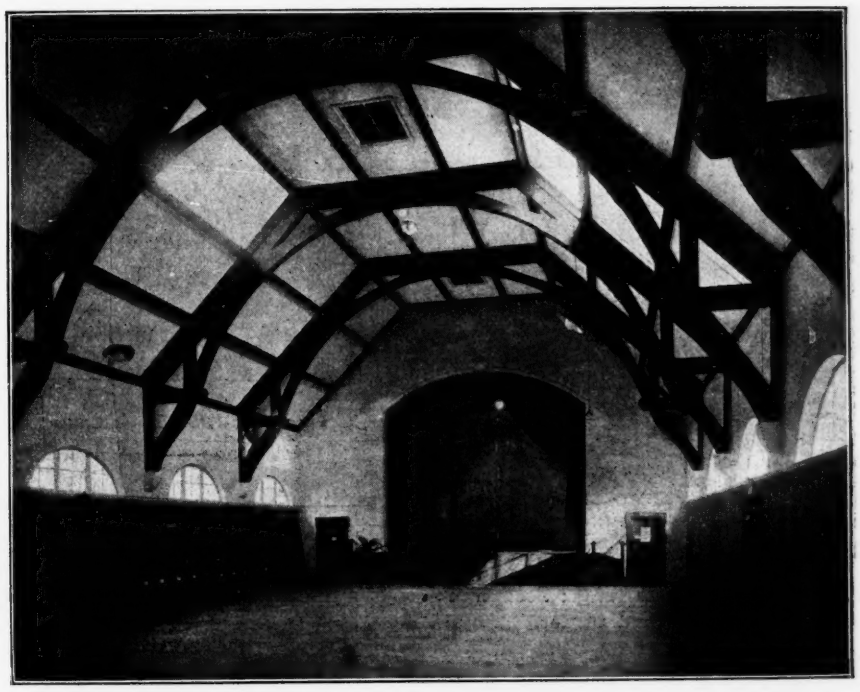
It will at once be seen that this can only mean a very small dimension indeed, but it must be still further reduced. In the first place the extreme fibre stress (f) is made up partly by direct compression, which adds no appreciable quota to the deflection. In ordinary cases this would amount to from 5 to 10 per cent., according to the slope of the roof. Secondly, the deflection of a cantilever braced towards the free end, viz, the truss foot, as in larger roofs, Figs. 2 and 3, would be some 25 per cent. less than that of a cantilever of uniform section, as Fig. 1 (*a*). So that in large roofs the deflection would not exceed $\frac{AB}{1{,}000}$.

The outward spread of each truss foot due to the deflection would be almost exactly $\frac{\Delta}{\text{cosec.}\phi}$, as in Fig 1 (*d*). For a roof slope of 30 degrees the deflection must, therefore, be divided by 2 to arrive at the resulting spread; for a slope of 45 degrees by 1·414, and for 60 degrees by 1·154. A timber roof of 40 ft. span at 60 degrees might, therefore, be expected to spread, say, $2 \times \frac{480}{1{,}154}$, or, say, $\frac{3}{4}$ in.

Now suppose that there were a horizontal steel tie across *AB* stressed up to, say, 6 tons per square inch. The stress of such a tie under load would be $\frac{\text{Stress per square inch,}}{\text{Modulus of elasticity}}$ say $\frac{6}{13{,}000}$ or $\frac{1}{2{,}166}$ *AB*, or in a 40 ft. span $\frac{480}{2{,}166}$, or $\frac{1}{4}$ in.

Therefore not only is the actual spread of an ordinarily well-designed roof of as much as 40 ft. span practically unappreciable, *but a direct horizontal tie would allow almost as much.*

Of course, a direct horizontal tie with a tightening shackle affords a ready means of taking up any outward spread, but it must be remembered that quite two-thirds of the deflection would be due to the weight of the roof and covering which is imposed during construction and is finished by the time the roof is covered in. This can be allowed for by giving the truss feet a little play or even by erecting them on rollers of gas-pipe subsequently grouted in. In any case, it is far too small to warrant the disfigurement and expense of tie-rods. The latter could not be used to take up the occasional deflection due to wind or snow, which should be so small as to be inappreciable.



Eltham Parish Hall.

The author is quite aware of the practical difficulty of convincing local surveyors and other authorities of the truth of the foregoing calculation, in spite of the existence of well-known proofs nearly 500 years old. But it is not difficult nor expensive to have one truss made, set up on the ground on pipe roller bearings, and loaded with bricks in the manner shown in Fig. 4. The calculated outward spread of this particular hammer-beam truss, of which a photograph is shown in Fig. 5, was 0·63 in. It was loaded with bricks as shown, on a platform of putlogs and scaffold boards slung from the purlin points, the outward spread being measured with a steel tape. Upon the first application of the load the feet moved outwards slightly over 1 in. on account of the tightening up of the various joints. They came back $\frac{3}{4}$ in. on the removal of the load, and spread $\frac{3}{4}$ in. in each of the two reimpositions of it at intervals of two days. Needless to say, the District Surveyor was satisfied and withdrew his requisition for tie-rods. When the trusses were erected on brick and stone seats instead of pipe rollers no movement was detected.

It is sometimes suggested that horizontal ties aid the acoustic properties of arched timber roofs; but if the general proportions are correct, and the roof is ceiled at not too high a level, they should not be necessary in order to reduce echo, and they therefore only tend to impair resonance.

The village hall illustrated leaves nothing to be desired as regards absence of reverberation.

UNUSUAL RETAINING WALL IN LOMBARD-STREET.

A PARTICULARLY novel example of retaining-wall construction is now in course of completion on the Considère system of reinforced concrete at the new offices of the Royal Insurance Company, Lombard-street, E.C., by Messrs George Trollope & Sons and Colls & Sons, Ltd.

The wall is entirely self-supporting, and exerts no thrust whatever on the building

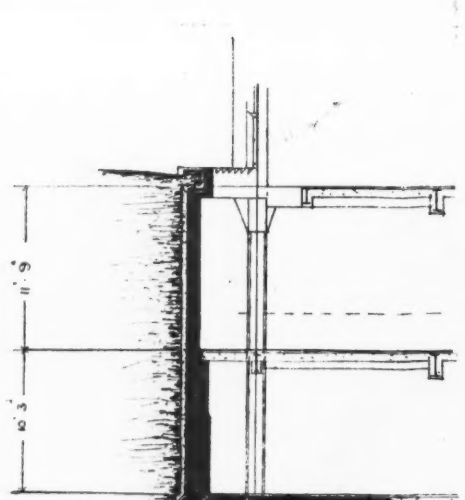


Fig. 1. Royal Insurance Building: Section of Retaining Wall and Girder.

which it surrounds. It is about 23 ft. high, and, as shown in Fig. 1, is stepped on the inside, the maximum thickness being 21 in. at sub-basement level.

Unlike most retaining walls in reinforced concrete, this wall is designed without counterforts, as these would have encroached too much on the valuable space in the basement and sub-basement stories of the building, and the base of the wall is built monolithic with a longitudinal girder in reinforced concrete. The duty of the latter member, the upper surface of which forms part of the basement floor, is to act as a continuous footing for the steel stanchions supporting the superstructure, and situated from 4 ft. to 6 ft. inside the building line. In accordance with building regulations the outer face of the retaining wall is in line with the kerb of the foot-pavement. Fig. 2 is a photographic view taken during construction from the longitudinal girder under the stanchions, and shows the general disposition of the reinforcement for the wall and girder. The work of photography was attended with some difficulty owing to the large amount of timber strutting and shoring in the way.

In the design of the longitudinal girder the effect of a possible variation of the stanchion loads from zero to 300 tons each has been duly taken into account, and the pressure on the ground at the front and back of the base of the retaining wall has been calculated from the position of the resultant in each case.

All details of the reinforced concrete work were prepared by the Considère Construction Company, Ltd., of Westminster.

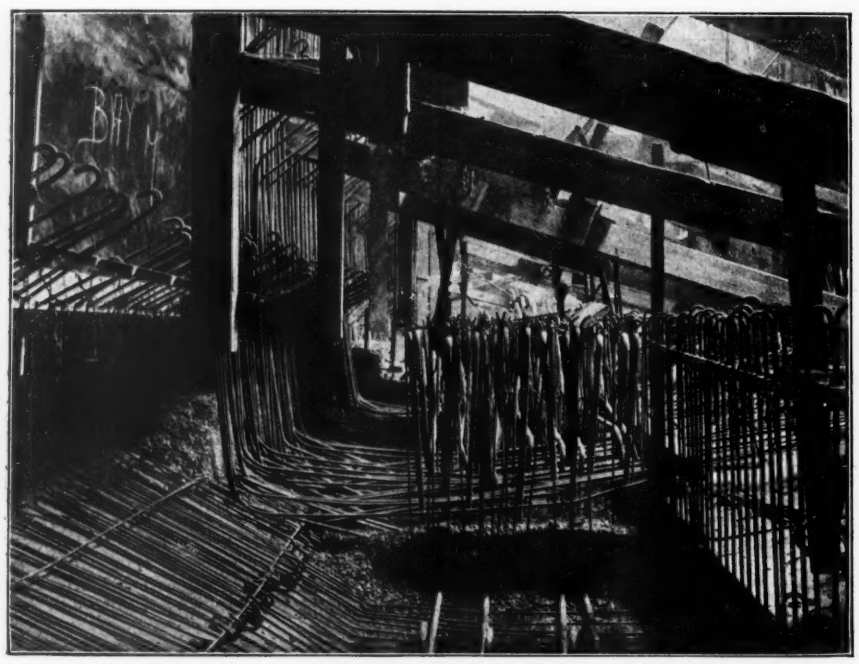


Fig. 2. Royal Insurance Building: Reinforcement for Retaining Wall and Girder.

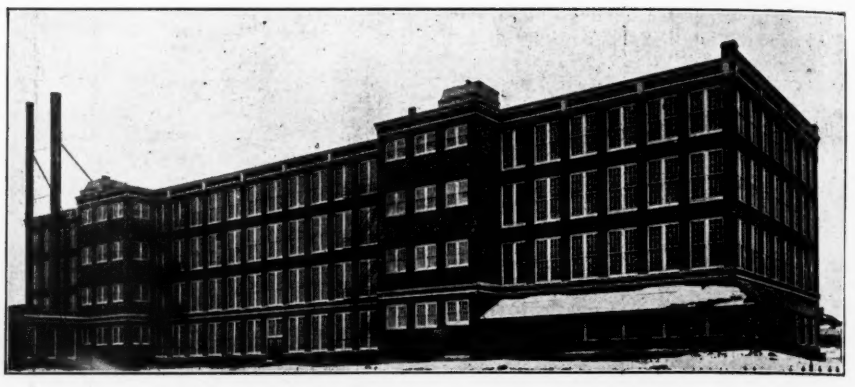


Fig. 1. Toledo Lamp Factory. General Electric Co.

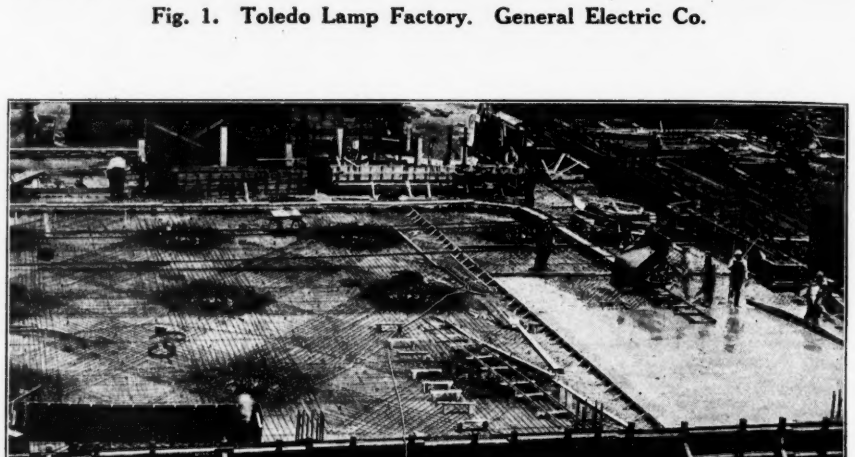


Fig. 2. Snead Building, Louisville, Kentucky.

THE FLAT SLAB SYSTEM OF REINFORCED CONCRETE.

AMONG various new methods of reinforced concrete construction which have been introduced of late years in the United States, the flat-slab system, primarily due to Mr. C. A. P. Turner, of Minneapolis, has been extensively used, and it is claimed that the flat-slab method of constructing floors will probably displace the customary beam and slab for factories, warehouses, and similar buildings.

The advocates of this system claim that its advantages appeal alike to the architect, the owner, and the contractor, for the reasons that the architect finds the details of construction can be very easily shown on his plans; that the owner saves initial outlay, while securing freedom from the obstruction caused by beams and reducing the cost of automatic sprinkler installation; and that the contractor finds less trouble in placing the steel and concrete, and less expense in moulds and centring.

Column moulds are naturally similar to those employed generally in reinforced concrete work, but for moulding floors the only requirement is a flat decking, usually composed of panels about 5 ft. or 6 ft. square, which can be readily put together, taken about, and used over and over again. Moreover, the size of the panels can be changed to suit the column spacing of different buildings.

The Toledo Lamp Works of the General Electric Company, of which a view is given in Fig. 1, illustrate the saving effected by the flat-slab system. This building measures 302 ft. long by 82 ft. wide, and includes four floors and a flat roof. It was at first intended to have beam and slab floors of the customary type, but the tenders received showed a saving of about 3d. per square foot in favour of the flat-slab system finally adopted. A simple calculation will demonstrate the important saving effected by the unit reduction mentioned. This building was designed by Messrs. Wilson, Harris, & Richards, architects, of Philadelphia, and the contractors were the A. Bentley & Sons Company, of Toledo, by whom all details of the reinforced concrete construction were designed under the superintendence of Mr. Frank N. Spencer, their chief engineer.

Figs. 2 and 3 illustrate the methods of construction followed by the same firm in the case of the Snead building, at Louisville, where the flat-slab system was also adopted. The concrete mixer is situated at the right hand of Fig. 2 beneath the square timber structure, which contains bins for stone and sand, these materials being raised by a hoist and shot into the bins, whence they gravitate into the mixer. The concrete is raised in the small tower adjoining and discharged into trucks, with the capacity of one cubic yard, on the floor under construction.

In Fig. 3 may be seen the typical arrangement of the reinforcing bars, and a track laid down for transporting the cars to different parts of the floor. Near the end of the track, part of the floor may be seen concreted, and on it one of the trucks in the act of discharging concrete to form the floor slab.

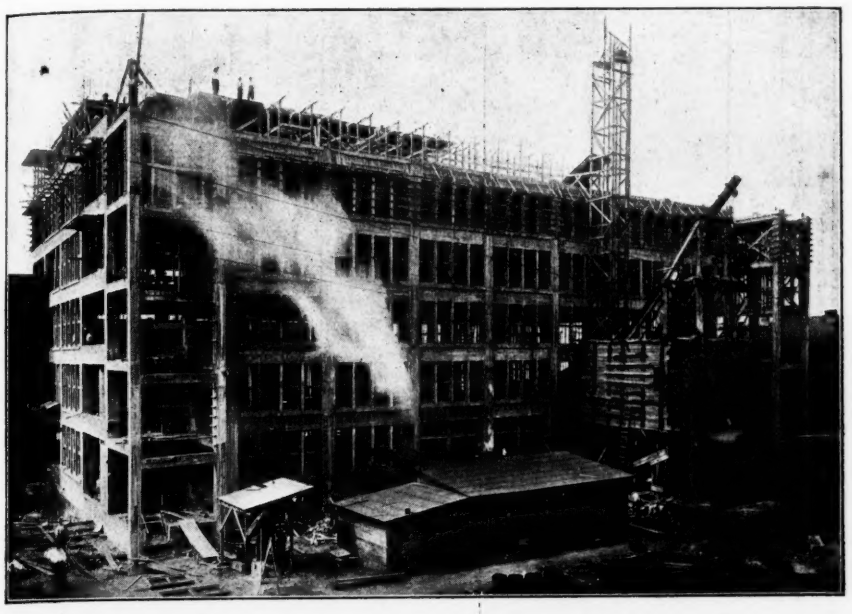


Fig. 3. Snead Building, Louisville, Kentucky. (*See page* 720.)

NEW HOSPITAL FOR THE MALVERNS.

By the liberality of Mr. C. W. Dyson Perrins a well-equipped, up-to-date hospital has been erected in Lansdowne-crescent, near Great Malvern Railway-station, and it was opened for occupation on Monday, the 29th ult., by Lady Beauchamp.

Although the actual site on which the building stands is not a large one, it adjoins Manor Park, and there is ample space, which will remain unbuilt on, around. It commands magnificent views of the hills and open country; therefore, so far as fresh air, cheerful outlook, rest, and quiet in a conveniently-arranged, substantially-constructed, and thoroughly-equipped building can assist the skill of physician or surgeon and the ministration of trained nurses, there is good reason for believing that the gift of Mr. Perrins will be the means of restoring to health and strength many whose misfortune it may be to be incapacitated by illness, accident, or disease.

Having regard to the increasing difficulty such institutions experience in securing necessary funds for annual upkeep, the accommodation has been limited to twenty-four patients' beds, an operating and an out-patients' department, all on the ground-floor level, with kitchen, dining, and sitting rooms for matron and staff below and bedrooms above. There are separate large wards for men, women, and children respectively, as well as single-bed wards.

A special feature is the provision of balconies opening from each large ward, which it is hoped may be fully utilised for patients likely to benefit by outdoor treatment. The grounds are surrounded by substantial stone walling of pleasing design, and have been tastefully laid out.

The design of the building and its supervision during construction was entrusted to Mr. William Henman, F.R.I.B.A., of Birmingham.

The building throughout is fireproof, no timber or other combustible material being incorporated in floor or roof construction, reinforced concrete on "Sideolith" methods being extensively employed. Walls are faced externally with Cradley stone, having Bath stone dressings, backed by brickwork. Pleasing effects internally are secured by the use of wall and skirting tiles, glazed-ware mantelpieces, and marble terrazzo paving to corridors and staircase, the principal doors and fittings being of polished teak. In a considerable number of thin partitions metal tape is used, as supplied by the Metal Ladder Tape Company, Ltd., of Birmingham.

The building contractors were Messrs. J. & A. Brazier, who, assisted by an able foreman and experienced artisans, have carried out the work in a most satisfactory manner.

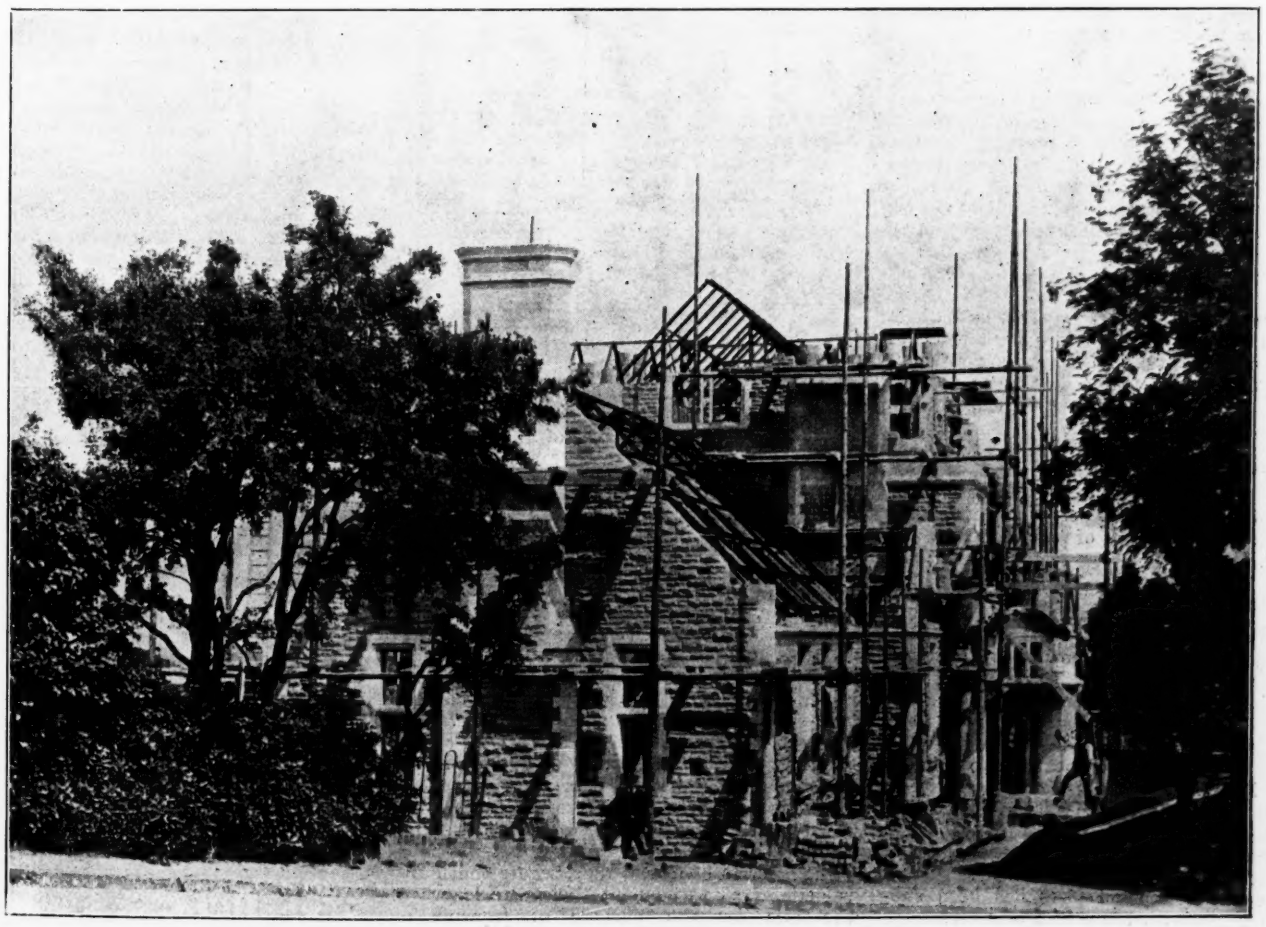
CONSTRUCTION NOTES.

Soft Soap for Waterproofing Concrete.

Before commencing to build a granary alongside the River Donau in Budapest, the engineer subjected various waterproofing compounds to chemical analysis, and found the chief constituent to be soft soap. Therefore the foundation raft was finished with a layer of fine concrete 1·18 in. thick, rendered with cement mortar to the thickness of 0·39 in., both mixtures being prepared with water containing sufficient soft soap to make the proportion of that material about 8 lb. per cubic yard of concrete and mortar.

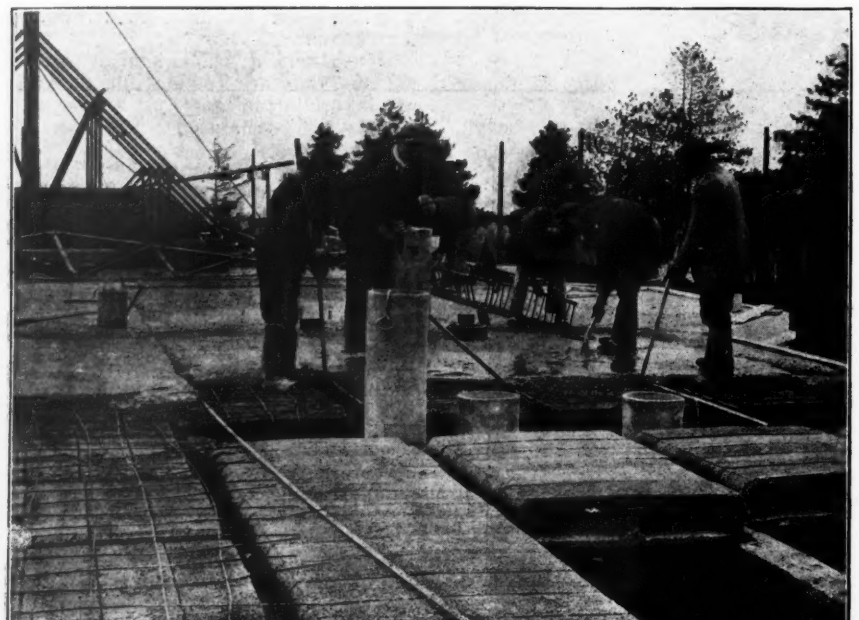
The practical value of the soap was demonstrated after the raft had been finished, as under a high head of water due to flood the construction proved to be perfectly watertight, although water percolated through an adjacent foundation slab of ordinary concrete.

More scientific inquiry into the efficacy of soft soap for waterproofing concrete was subsequently made by constructing a small tank of soap concrete and mortar and examining the material after the vessel had been filled with water for a month. It then appeared



New Hospital for the Malverns.

Mr. W. Henman, F.R.I.B.A., Architect.



New Hospital for the Malverns.
Mr. W. Henman, F.R.I.B.A., Architect.

that while the mortar and concrete was uniformly penetrated for a short distance below the surface the remainder was quite dry and very hard.

The most probable explanation of the action of soft soap is that free lime in the cement enters into combination with constituents of the soap, forming an insoluble compound of sebaceous character filling up the interstices in the concrete.

Tests of Reinforced Concrete Columns.

AMONG the investigations of the German Commission on Reinforced Concrete, those relating to columns are of special interest for the reason that they throw light upon the subject of lateral reinforcement.

The first series of tests was conducted on square and octagonal columns loaded axially and provided with four longitudinal bars connected laterally by ties of various kinds, some forming a square, and others a circle, while some were disposed horizontally and others diagonally. As the test columns had hardened in the open air at different times, the results of the tests were doubtless rendered somewhat unreliable by the influence of varying degrees of humidity of the atmosphere, but so far as the results themselves are concerned they appear to show little difference between the value of the various types of lateral reinforcement.

The second series of tests was conducted on columns of similar construction, but with the transverse ties more closely spaced, and which had been seasoned under approximately equal conditions. In this case, the results were more consistent, although again showing no marked difference between the value of the various forms of lateral reinforcement.

Hence it may fairly be deduced that the exact form of transverse reinforcement is not a very important factor if adequate bracing of the longitudinal bars and sufficient resistance to the lateral swelling of the concrete are provided.

Load Test of Foundation Piers for the Municipal Building, New York.

IN November last we gave a description of the municipal building now being erected near the Brooklyn Bridge terminus in New York. As this structure comprises forty stories, and will involve an outlay of nearly two millions sterling, it is very desirable for the architects to have some assurance as to the perfect stability of the foundation piers, sixty-eight of which have been sunk to solid rock at the depth of from 87 ft. to 150 ft. below street level.

One of the completed piers has been subjected to a test with the object of ascertaining the actual settlement under the maximum load of 10 tons per square foot. The pier selected is 10 ft. 9 in. in diameter by 34 ft. 5 in. deep, and, being one of the shortest piers, the assistance afforded by skin friction was comparatively small.

The following are the main observations taken during the conduct of the test :—

Load.		Settlement.		
		Per Increment of Load.		
Total.	Per sq. ft.	Immediate.	After 24 Hours.	Total.
Tons.	Tons.	In.	In.	In.
181·6	2	0·084	—	0·084
		—	0·036	0·12
272·4	3	0·06	—	0·18
		—	0·024	0·204
363·2	4	0·084	—	0·288
		—	0·048	0·336
454·0	5	0·072	—	0·408
		—	0·000	0·408
544·8	6	—	—	—
		—	0·096	0·504
635·6	7	0·000	—	0·504
		—	0·048	0·552
726·4	8	0·036	—	0·588
		—	0·036	0·624
817·2	9	0·108	—	0·732
		—	0·048	0·78
908·0	10	0·048	—	0·828
		—	0·12	0·948

The test was conducted under the direction of the Department of Bridges by the Foundation Company of New York, the contractors for the substructure.

Reinforced Concrete Screw Piles and Columns.

SCREW piles, invented many years ago by Mr. Alexander Mitchell, made of timber or iron, have been largely used in all parts of the world for giving increased bearing power for foundations in soil of unstable character. An adaptation of the same principle to reinforced concrete piles and columns has lately been made by Mr. G. C. Vernon-Inkpen, F.S.I., whose patent is being worked by the Helical Reinforced Concrete Screw Syndicate, of Portsmouth.

Fig. 1 shows part of a pile with extended bearing threads as recommended for sand, made ground, and loosely-compacted soils generally. Screws with narrower threads are made for soil of more stable character. The screw blades can be moulded as part of the pile and suitably reinforced, or applied in the form of castings slipped over the shaft of the reinforced concrete pile, these two methods of construction being illustrated in Figs. 2 and 3.

It will be noticed that the main reinforcement consists of helical rods, whose continuity is maintained throughout the entire length of the pile for the purpose of transmitting efficiently the torsional strain developed in the operation of screwing down the pile. The secondary reinforcement comprises two annular coils of expanded metal or steel network, the main object of these coils being to increase the compressive resistance of the pile by restraining lateral expansion due to axial compression. Where required, pipes are embedded in the middle of the pile for sinking by the aid of water jets.

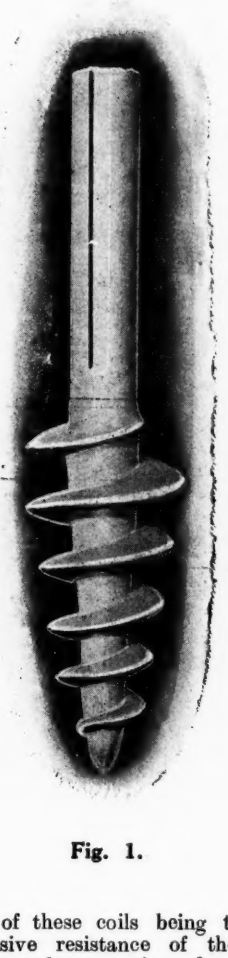
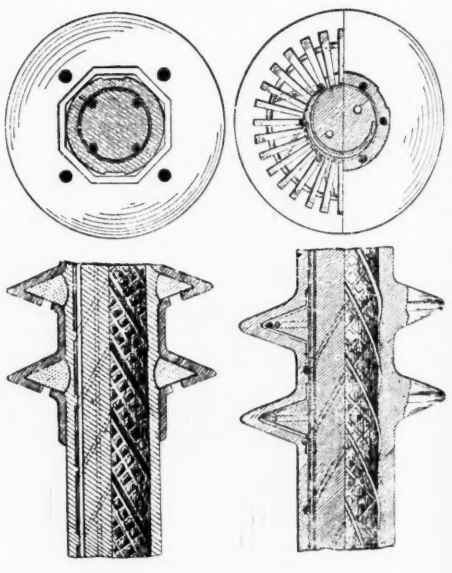


Fig. 1.

The threads of the concrete screw represented in Fig. 2 are reinforced and supported by steel brackets with radiating tangent arms wrapped spirally around the shaft reinforcement, as a helix in the direction of the pitch of the sinking screw, and the reinforcement is designed for adequate resistance to shearing force.

The cast-iron screw shown in Fig. 3 is made in sections, which can either be built up with or attached by keys to the pile shaft.

The piles may be screwed direct into the ground or in holes previously bored for the purpose, and the same applies to columns, which differ only in name from the piles described. The additional resistance secured by the projecting screw blades should often be found a valuable aid in the construction of quays, and structures where the subsoil is of low-bearing power, and particularly in underpinning works and for anchorage purposes. Among other advantages claimed, one that should appeal to architects is that the process of sinking does not involve shocks and vibration due to the customary method of pile driving.



Figs. 2 & 3.

THE BUILDING TRADE.

THE NATIONAL INSURANCE BILL.

THERE are some very remarkable provisions in the National Insurance Bill which appear so far to have escaped public notice, and to which, therefore, it may be well briefly to call attention.

By clause 46 it is provided that where it is alleged by any approved Society or local Health Committee that any excessive sickness due to the nature or conditions of employment or to bad housing or insanitary conditions in any locality, or to defective or contaminated water supply or to the neglect on the part of any person or authority to observe or enforce the provisions of any Act regulating the health of workers in factories, workshops, mines, quarries, or other industries, or relating to public health has taken place amongst insured persons for the administration of whose sickness and disablement benefits the Society or Committee is responsible, the Society or Committee may apply for an inquiry to be held by some competent person appointed by the Secretary of State or the Local Government Board, as the nature of the case may require.

On such inquiry being held, if it appears to the person holding the inquiry that during a period of not less than three years, or if there has been an outbreak of any epidemic, endemic, or infectious disease during any less period the amount of such sickness has exceeded by more than 10 per cent the average expectation of sickness calculated in accordance with tables prepared by the Insurance Commissioners for the purpose of valuations under this part of the Bill, and that such excess was due in whole, or in part, to any of the aforesaid causes, then the person holding the inquiry shall have power to assess the amount of any such extra expenditure and to order the following persons to make the same good.

1. If it is due to conditions of employment the employer is to be made liable.

2. If it is due to bad housing or sanitary conditions the local authority is liable, but if it can be shown that the owners or occupiers of any premises are in default, then notice can be served upon such persons, and they may be made liable.

3. If it is due to water supply, the local authority or the water company is made liable.

The person holding the inquiry is to have the same powers as an inspector of the Local Government Board and may order parties to pay costs, but a Society or Committee shall not be ordered to pay the costs of the other party to the inquiry if the person holding the inquiry certifies that the demand for an inquiry was reasonable under the circumstances, and where such a certificate is granted the Treasury may even repay the costs incurred by the Society or Committee.

This is a summary of the main provisions of this very long section, and many of the objections to legislation of this character are apparent at once. In the first place, having regard to the special legislation in force relating to factories, workshops, mines, housing and public health, should an approved Society which may be a trade union, be given powers to raise an inquiry on highly contentious subjects, and to involve local authorities and private individuals in an expensive investigation? Are not the subjects involved in the inquiry difficult of exact determination and most problematic? The source of epidemic disease may be difficult to trace; it may have been imported, and the margin of 10 per cent. over the average expectation, having regard to widespread localities, is very narrow. Lastly, although the Bill provides for an appeal to the High Court from decisions of the Insurance Commissioners, as far as we can see, no appeal of any kind is provided from the decisions of the "competent person" appointed to hold the above inquiries which involve matters of such complication and importance, and which may result in the imposition of serious liability on the local authorities and private individuals.

The above matters will require serious consideration in the Committee stages of the Bill.

BUILDING TRADE EXHIBITS AT THE GLASGOW EXHIBITION.

IN this exhibition, covering as it does the whole field of modern industry, in addition to those of national art and history, the exhibits of a purely "building" character are naturally not numerous, yet they are of a representative character, and enable visitors to obtain a comprehensive view of modern construction and fittings.

Taking the exhibits in the industrial section in their order of numbering, we have first Stands Nos. 35 and 36, where Messrs. Sissons Brothers & Co., Ltd., of Hull, the manufacturers of Hall's distemper, have a well-thought-out exhibit, displayed in two living-rooms, which shows to advantage the qualities of their well-known colours, paints, varnishes, and washable distempers.

Messrs. W. Miller, Ltd. (Stand No. 38), who act as agents for the Well Fire and Foundry Company, show several of the popular "Well" fires, as well as a number of modern ranges, notably the "Kolsave" range, which is smoke-consuming and has a well-designed quick-heating boiler.

Messrs. John Finlay & Co., Ltd. (Stand No. 39), and Messrs. Shaw, Walker, & Co. (Stand No. 40) also show their latest types of ranges, and, in addition, the former show a number of patent heating appliances, both electric and oil.

The Falkirk Iron Company (Stands Nos. 45 and 46) have a comprehensive display of their various specialities, comprising kitchen ranges, anthracite stoves, fireplaces, enamelled baths, and several examples of constructional cast-iron work.

The Carron Company (Stands 54 to 57) have a wide diversity of manufactures, embracing everything in iron founding from a flat-iron to a 40-ton casting, but their exhibits are necessarily restricted to certain sections of their goods. Their stand is in three bays, the first exhibiting a characteristic suite of firegrates by the Longden branch of the company, excellent models of the periods selected. The central bay shows a variety of Carron designs in firegrates, the details of many of which were the work of the Haworth brothers, who carved the originals in wood at Carron during the latter half of the XVIIIth century. The third bay is devoted to a modern well-equipped bathroom, which gives evidence of the company's undoubted ability to meet the most exacting demands in this important branch. Mention must be made of the company's sign, executed in plaster and enriched with details from their selection of designs, the lettering being based on the Albrecht Dürer alphabet. The whole is supported by square pillars covered with lead in its natural colour, the general effect being very pleasing.

Messrs. Shanks & Co., Ltd., of Barrhead (Stands 112 to 115), have a very well-arranged exhibit, consisting of a set of four bathrooms, each designed to display their latest fittings in a suitable setting, and with all accessories complete. The finishing of the walls and floors has been carefully considered in relation to the various fittings, and the whole forms an exceedingly instructive exhibit.

Messrs. D. Anderson & Son, Ltd., of Belfast and London (Stands Nos. 191 and 192), have a large and interesting structure designed to display externally their "Marosa" artificial marble and internally their "A.W.P." water paint and "Sider-oleum" wood preservative. The "Marosa" slabs are of various shades, and seem eminently suited for use as wall facings for shops, bathrooms, hospitals, etc., as the surface takes a very high polish, is permanent, and the cost is comparatively low. Very good matt effects are obtained with the "A.W.P." water paint, and the variety of shades shown is excellent. Messrs. Anderson show railings, etc., treated with their well-known wood preservative "Sider-oleum." This is prepared in brown and green shades, and is very effective both in appearance and in its preservative powers against damp, fungus, and insect attacks.

Messrs. Doulton & Co., Ltd. (Stands Nos. 286 and 287), have a most complete exhibit of modern improved sanitary appliances suitable for all classes of buildings, ranging from those shown in their No. 3 bathroom, the cost of which runs well over 100*l*., to those shown in No. 1 bathroom, which costs 12*l*. complete. In all they have six bathrooms fitted up complete, and, in addition, there are examples of ship and hospital fittings. In their No. 3 bathroom Messrs. Doulton show their very finest class of goods of a massive yet simple character, with silver-plated fittings throughout. The basin-top is of green onyx. Their No. 1 bathroom, on the other hand, proves that economy is quite possible with efficiency, providing as it does every essential of a modern bathroom at the low cost of 12*l*., and these of thoroughly substantial make and of pleasing design. Of the other rooms shown, that called the "Doulton" room has all the fittings similarly treated with raised "Doulton" decoration, which gives a rich effect without interfering with the usefulness and sanitary character of the appliances. Of the other fittings shown attention might be directed to a patent waste-preventing valve for water-closets, which can be regulated for any required discharge. This has been approved by the Metropolitan Water Board, and is extremely useful when the placing of a cistern is a difficulty. A special hospital basin in white vulcanware, with large overflow and porcelain enamel taps, has many good points, not the least of which is the absence of all exposed metal requiring cleaning. In addition to their thoroughly representative display, Messrs. Doulton & Co. have fitted the whole of the sanitary work of the exhibition, and have used throughout their latest patterns.

Messrs. Melville & Dundas (Stand No. 290), representing H. H. Martyn & Co., Ltd., have some excellent wood and plaster finishings on view, in which the high character of their work is well maintained.

Messrs. Edwards, Macdougal, & Co. (Stand No. 315) have specimens of polished marble and granite suitable for architectural work, and show various methods of cutting these.

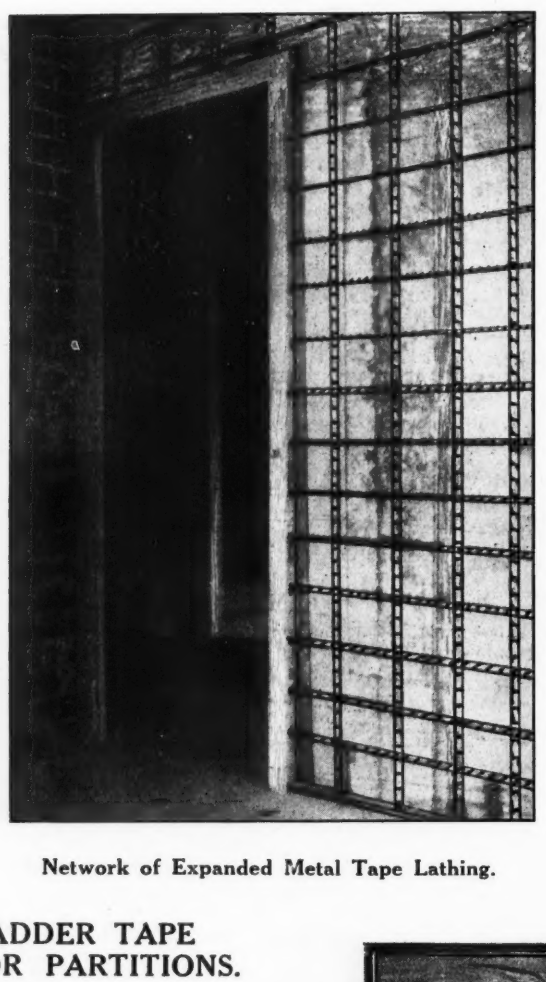
Messrs. Farquhar & Gill (Stand No. 324) have a nicely-designed stand showing the decorative effect of their "Platinol" enamel white and "Bon-Accord" cold-water paint, with which good effects and durable surfaces can be obtained at a low cost.

The Roneo, Ltd. (Stand No. 326), exhibit displays their excellent steel furniture and other specialities.

Of the purely structural exhibits mention might be made of Messrs. D. & J. Tullis's work at the aerial railway, the Glengarnock Iron and Steel Company's exhibit of structural steel and samples of material, and the Glasgow Iron and Steel Company's interlocking steel piling, all of which merit careful inspection.

NEW GIRLS' SCHOOL, LOUGHTON.

This school has been erected at a cost of about 3,597*l*., from the plans prepared by Mr. H. Tooley, architect. The contract was carried out by Messrs. Clark & Sons, of Cambridge.



Network of Expanded Metal Tape Lathing.

METAL LADDER TAPE LATHING FOR PARTITIONS.

THE form of lathing described in this note is formed by cutting slits obliquely in steel strip and then expanding the material by the aid of a simple device termed an expander. The result is to make the two sides of the strip assume positions similar to those of the top and bottom flanges of a lattice girder, while the portions between the oblique slits extend between the flange as web members, the expanded tape resembling a ladder in appearance.

The tape is supplied by the Metal Ladder Tape Company, Ltd., of Birmingham, in coils 250 ft. long, and, as it is not expanded till on the site, transport is easy and inexpensive. Three standard widths are produced—$\frac{1}{2}$ in., $\frac{3}{4}$ in., and $1\frac{1}{4}$ in. respectively.

To expand the strip an expander, procured from the same firm, is screwed to a plank and below it is fixed a holder. One end of the strip is then inserted, and the opened end coming through the apparatus is pulled until the required length has been expanded, the $\frac{1}{2}$ in. and $\frac{3}{4}$ in. tape expanding to 1 in., and the $1\frac{1}{4}$ in. size to $2\frac{1}{2}$ in.

The accompanying view represents a network of the expanded tape erected with shuttering behind in readiness to receive the plaster for forming a partition. The tape constitutes an efficient form of reinforcement for either plaster or concrete partitions, and is obviously far more rigid than any type of flat lathing, whether of wire or thin sheet metal of equal weight.

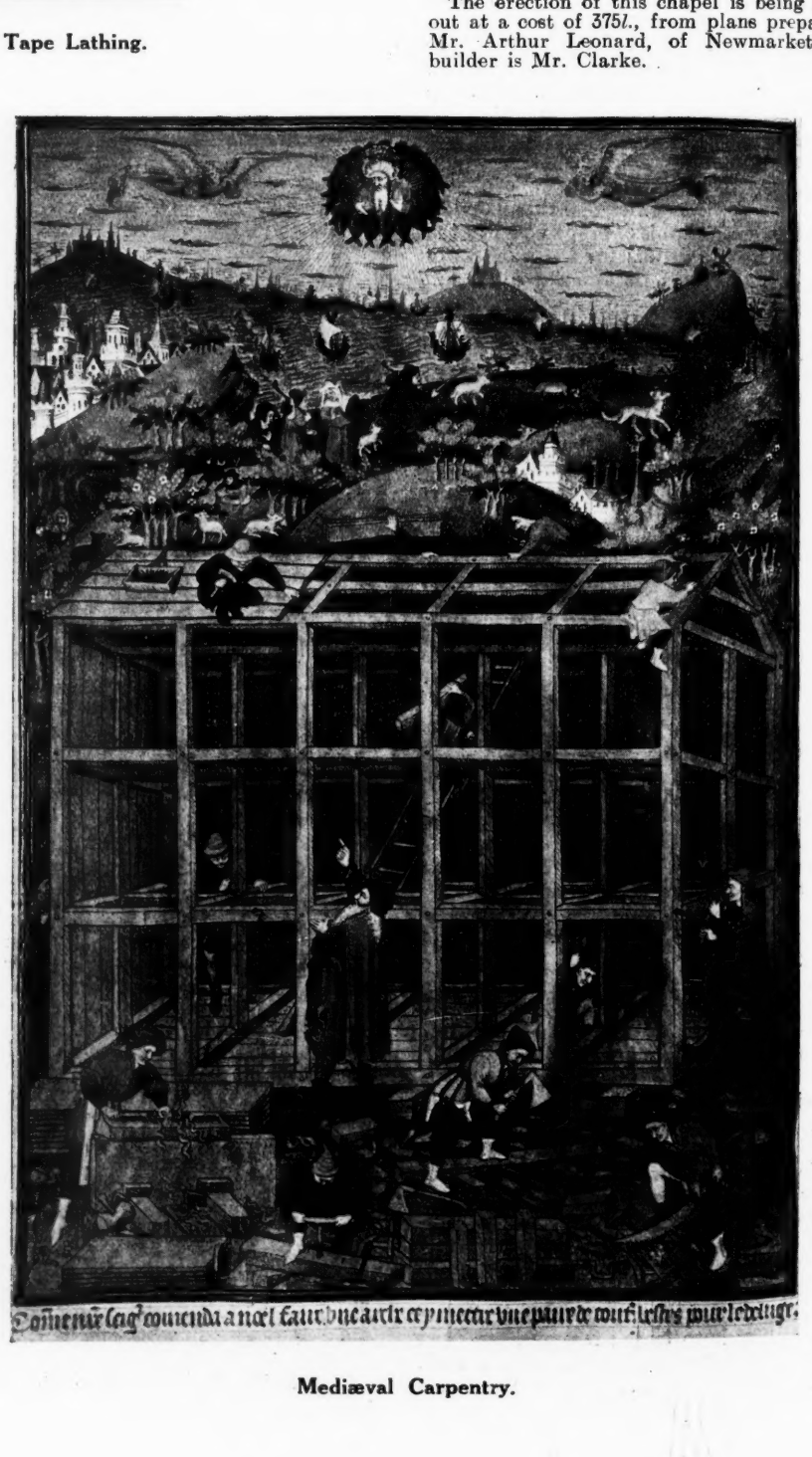
MEDIÆVAL CARPENTRY.

THE accompanying little picture, the reproduction of one drawn in the XVth century, provides us with an excellent representation of the way in which mediæval carpenters erected a building of timber construction.

Our reproduction is by photography, consequently every detail may be relied upon as faithfully representing the original picture. The original forms one of the illuminations of the British Museum MS. 18850 f. 50 b.

NOTTINGHAM BUILDING STRIKE.

AT a special meeting of the Nottingham City Council held last week, it was decided that the Council should not in any way interfere with the building trade dispute, and the Mayor declined to receive a deputation. The work of erecting the new Nottingham eye infirmary has had to be suspended owing to the strike.



Mediæval Carpentry.

NEW FORM OF ACCOUNT BOOK FOR CONTRACTORS.

WE have received from Messrs. Cockayne & Co., Ltd., of 185, Walworth-road, S.E., a copy of Oxborrow's combined order, prime cost, charges to customers, and summary book, a well-arranged account book which ought to be found extremely useful to contracting and manufacturing firms. Each sheet provides spaces for the date and particulars of order and the name and address of customer, and columns for reference numbers, particulars of materials issued, names of workmen employed, hours spent, rate of wages, prime cost, analysis of cost, and amount charged to customer. Thus the completed page records a history of the entire transaction, and shows clearly the exact profit made. The same sheet is provided with a perforated detachable workman's order, which on completion of the work is to be returned to the office after the materials used and time occupied have been duly recorded. If additional workmen's orders are required for any job, they can be issued from any ordinary order book and registered on the main sheet so as to avoid being overlooked. The returned workmen's orders afford a valuable check on the records taken from invoice, stores, and petty cash books, and time sheets. The system generally is one obviating the risk of leakages and making losses impossible, providing ordinary care is exercised by the bookkeeper.

NEW CHAPEL, MILDENHALL.

The erection of this chapel is being carried out at a cost of 375*l.*, from plans prepared by Mr. Arthur Leonard, of Newmarket. The builder is Mr. Clarke.

GENERAL BUILDING NEWS.

CONGREGATIONAL CHURCH, FAIRHAVEN.

This church is being erected at a cost of about 7,500*l.* The architects are Messrs. Briggs, Wolstenholme, & Thornely, of Blackburn and Liverpool.

ST. PETER'S CHURCH, HAMMERSMITH.

The memorial to the late Miss Sutherland, which took the form of the decoration of the east end of the church, was dedicated last week by the Bishop of London. Mr. H. G. Murray, of Britannia Studio, Sloane-square, is the artist who painted the two panels which have been placed on each side of the chancel window, and the work was carried out under the direction of Mr. A. O. Collard, F.R.I.B.A.

NEW SCHOOL, NORTHAMPTON.

The cost of the erection of this school in Northampton town is 20,000*l.*, and has been built from the designs of Messrs. Norman & McKewan, architects, of Northampton, the contract having been carried out by Mr. A. P. Hawtin, builder, of Northampton.

GIRLS' SCHOOL, PONTYPOOL,

The new wing to this school was opened last week, and has been built from the designs of Mr. Benjamin Lawrence, architect, of Newport. The contract was carried out by Mr. W. H. Campbell, builder, of Pontypool.

CATHOLIC SCHOOL, HEBBURN.

Mr. Walker, of Newcastle, is the architect of the new wing which has just been added to this school, and the erection of which has cost 1,800*l.* The contractor for the work was Mr. J. Munro, of Hebburn.

HOSPITAL EXTENSION, SWANSEA.

The estimated cost of this extension is 30,000*l.*, and the plans have been prepared by Mr. Glendinning Moxham, F.R.I.B.A., architect, of Swansea. The contract is being carried out by Messrs. H. Billings & Sons.

KING EDWARD MEMORIAL, BIRKENHEAD.

Messrs. Edmund Kirby & Sons, of Liverpool, are the architects for the clock tower which is to be erected as a memorial to King Edward.

ALTERATIONS, HIGH-STREET, MAIDENHEAD.

Alterations have recently been carried out at No. 74, High-street, Maidenhead, for Messrs. Neve Bros., outfitters, etc. The shop front was executed by Messrs. Sage & Co., Ltd., of London, and the contractor for the general building work was Mr W. Creed of Boyne Works, Maidenhead. The architect was Mr H. Stanton Webber, F.S.I., Queen-street, Maidenhead.

TRADE NEWS.

The "Boyle" system of ventilation (natural), embracing Boyle's latest patent "air-pump" ventilators and air inlets, has been applied to the Wesleyan Chapel, Stevenage.

The new secondary schools, Peterborough, are being ventilated by means of Shorland's patent exhaust roof and special inlet ventilators, supplied by Messrs. E. H. Shorland & Brother, Ltd., of Failsworth, Manchester.

WIRED GLASS.

Material to resist fire can be employed with advantage now in many parts of buildings, and no invention has withstood more severe tests than the wired glass made by Messrs. Pilkington Brothers. A recent fire at the St. Helens Works proved its use. The reinforced glass was fitted to a building which was practically destroyed, but the skylights remained in position. Moreover, the adjoining warehouse was saved by the wired glass in the windows, which resisted the heat in spite of the gale which blew the flames towards the building.

ELECTRIC POWER.

Some years ago the Westminster Electric Supply Corporation, recognising the immense field awaiting development in the use of electricity for auxiliary purposes, laid themselves out to meet it by supplying current to their lighting consumers for cooking and heating, working lifts, and driving motors at 1d. per unit. The company claims that houses completely equipped electrically for lighting, heating, cooking, and the supply of hot water would be not only healthier and cleaner, but actually more economical to live in than houses fitted as at present. Extensive demonstration rooms have been built at their head office in Eccleston-place, in which the latest apparatus and devices of all kinds are installed. The company do not undertake installation work themselves, and consequently all fittings are for demonstration only, and not for sale.

PROJECTED NEW BUILDINGS IN THE PROVINCES.*

ABERDEEN.—Extensions to school of domestic science (11,000*l.*); Mr. Kelly, architect, care of the Governors, Robert Gordon's Technical College.

Aberdeenshire.—Rathen School (2,500*l.*); Mr. W. E. Gauld, architect, 258, Union-street, Aberdeen.

Antrim.—Reconstruction of Greenmount House for school; Messrs. Robert Corry, Ltd., builders, University-street, Belfast.

Arbroath.—Additions to works, for Messrs. Jas. Keith & Blackman Co., Ltd., High-street (5,000*l.*); plans by firm's own staff.

Axminster.—Cottage hospital (3,000*l.*); Mr. Leslie T. Moore, architect, 3, Raymond-buildings, W.C.

Ayr.—Extensions to Littlemill School (2,200*l.*); Mr. W. Cowie, architect, Ayr.

Bishopthorpe.—Additions to Middlethorpe Lodge for Sir J. Grant Lawson.

Blackburn.—Catholic school; Messrs. Simpson & Duckworth, architects, Richmond-terrace, Blackburn.

Blyth.—Proposed school; Mr. H. T. Rutherford, Secretary, Education Committee, Blyth Town Council.

Bothwell.—Hall for Kirkfield U.F. Church (2,100*l.*); Messrs. Jas. Davidson & Son, Academy-street, Coatbridge.

Bradford.—Cuba mill and association works (4,000*l.*); Mr. J. Booth, Bradford Dyers' Association, engineer, 49, Well-street, Bradford; Messrs. Platt & Castle, builders, Ramsbottom. Proposed alterations to Town Hall (6,500*l.*); Mr. R. G. Kirkby, City Architect, Bradford Town Council.

Breightmet (Bolton). — Proposed school, Bury-road; Mr. F. Wilkinson, Secretary, Education Committee, Bolton Town Council.

Brighouse.—Warehouse for Messrs. Turner & Wainwright (2,200*l.*); Messrs. Sharp & Waller, architects, 32, Bradford-road, Brighouse; Mr. A. L. Waddington, builder, Brighouse. Proposed public baths (4,700*l.*); Mr. S. S. Haywood, Surveyor, Brighouse Town Council.

Broxbourne.—House and offices for Mr. H. F. Hunt.

Chasetown (Staffs).—Infants' School (2,640*l.*); Mr. W. Cooper, builder, West-street, Blackheath, Birmingham.

Clacton (Essex).—Proposed school; Mr. J. H. Nicholas, Secretary, Education Committee, Essex County Council, Chelmsford.

Clayton-le-Moors.—Premises, Mercer-street, for the Clayton-le-Moors Co-operative Society.

Cliff.—Stables and hunt kennels (5,000*l.*); Messrs. Taylor & Minor, 88, Northgate, Darlington.

Coatdyke (Coatbridge). — Congregational Church (1,500*l.*); Mr. W. Inglis, 261, West George-street, Glasgow.

Consett. — Additions Technical School (1,600*l.*); Mr. N. Richley, Shire Hall, Durham.

Coventry.—Proposed school on site of portion of Leicester-street Brewery; Mr. F. Horner, Secretary, Education Committee, Coventry Town Council.

Dagenham.—Proposed works for the Union Cable Co., 27, Eagle Wharf-road, N.

Deaf Hill (Co. Durham).—School (6,000*l.*); Mr. W. Rushworth, architect, Shire Hall, Durham; Messrs. Blackett & Sons, builders, Darlington.

Dumfries.—County buildings for Dumfries County Council (20,000*l.*); Mr. J. M. Dick Peddie, 8, Albyn-place, Edinburgh.

Dyke.—Public school (2,560*l.*); Mr. John Wittet, architect, 81, High-street, Elgin.

Edinburgh. — Drill hall, McDonald-road (5,000*l.*); Mr. T. Duncan Rhind, architect, 28, Rutland-street, Edinburgh.

Exeter.—Parish hall for Emmanuel Parish (2,000*l.*); Mr. E. J. Pinn, architect, Exeter.

Eye (Suffolk).—Workhouse; Mr. H. Warnes, Clerk, Hartismere Board of Guardians, Eye.

Framwellgate Moor.—Stores for the Framwellgate Moor Co-operative Society.

Glasgow.—Extensions to Saracen Tool Works (6,500*l.*); Mr. J. A. Millar, 144, St. Vincent-street, Glasgow. Extensions to works of British Dyewood and Chemical Co., Ltd. (8,000*l.*); Messrs. Honeyman, Keppie, & McIntosh, architects, 4, Blythswood-square, Glasgow.

Greenock.—Shops, offices, etc., Cathcart-street (3,000*l.*); Messrs. Boston, Menzies, & Morton, architects, 11, William-street, Greenock.

Grimsby.—Cinematograph thearte, Kent-street, for the Cinematograph Theatre Co.

Hastings.—Proposed two shelters on esplanade (1,000*l.*); Mr. P. H. Palmer, Surveyor, Hastings Town Council.

Horwich.—Infants' school; Mr. J. Slater, builder, Horwich.

Hull.—Additions to Grand Theatre for Messrs. Mortons, Ltd. Stores, Prince's-avenue, for the Hull Co-operative Society.

Inverkeithing.—School (9,000*l.*); Messrs. Bryden & Robertson, 147, Bath-street, Glasgow.

Irthlingborough.—Additions to factory for Baves Bros., Ltd.; ditto for Spencer & Co., Ltd.

Jarrow.—Workshop and offices for the Mercantile Dry Dock Co.; Mr. T. Hanning, architect, 2, Collingwood-street, Newcastle; Messrs. T. Lumsden & Son, builders, Jarrow.

Keighley.—Stores, Calton-road, for the Keighley Co-operative Society.

Kildrummy Church and Manse (3,000*l.*); Messrs. Kelly & Nicol, 307, Union-street, Aberdeen.

Leicester.—Proposed public hall adjoining Victoria Park (15,000*l.*); Messrs. Stockdale, Harrison, & Sons, architects, 7, St. Martin's East, Leicester.

Leigh.—Extensions to technical school (4,350*l.*), also new school, Windemere-road (10,600*l.*); architect, care of Mr. J. Ward, Secretary, Education Committee, Leigh Town Council.

Leigh-on-Sea.—School; Mr. P. Brockbank, architect, Southend.

Llandudno.—Church (2,000*l.*); Messrs. Porter & Elcock, architects, Colwyn Bay; Mr. Peter Edwards, builder, Dodleston, near Chester.

Lynton (Devon).—Reservoir (3,000*l.*); Mr. W. Yeo, engineer, Lynton.

Newton Mearns.—Public school (2,000*l.*); Mr. W. T. E. Aitken, 21, West Nile-street, Glasgow.

Ormiston.—Proposed eighteen houses for the Ormiston Building Co.

Oxshott.—St. Andrew's Church (4,000*l.*); Messrs. Cornish & Gaymar, builders, Millfield Works, North Walsham, Norfolk.

Partick.—Extensions to Knightswood Hospital (2,500*l.*); Mr. John Bryce, Burgh Surveyor, 1, Maxwell-street, Partick.

Pollokshields.—Extensions to house, Newark Drive (2,500*l.*); Mr. C. H. Robinson, architect, 49, Bath-street, Glasgow.

Preston.—Wycliffe School (3,000*l.*); Mr. W. Rawcliffe, architect, 26, Fishergate, Bolton; Messrs. Topping Bros., builders, Fulwood.

Redgarton.—School (4,500*l.*); Mr. Jas. Marshall, King Edward-street, Perth.

Redruth.—Country house, West Trewergie (1,500*l.*); Mr. Leonard Winn, Truro, Cornwall.

Rochdale.—Extensions to Art Gallery (6,500*l.*); Messrs. R. & T. Howarth, builders, Royds-street, Rochdale.

Selby.—Proposed fifty-six houses; Mr. R. B. McG. Gray, Surveyor, Selby Urban District Council.

Shaver's End.—Six houses; Messrs. Oakley & Coulson, builders, Stafford-street, Dudley.

Shepshed.—Alterations to factory, Charnwood-road, for Messrs. Whyte & Smith.

Shettleston.—North British Bottle Works (4,000*l.*); Messrs. Hutton & Taylor, 212, Bath-street, Glasgow.

Skelmersdale.—Enlargement of school; Messrs. Medcalf & Medcalf, architects, Ormskirk.

Southsea.—Congregational Church (4,000*l.*); Mr. C. W. Bevis, architect, Elm Grove Chambers, Southsea; Mr. Jas. Crockerell, builder, Victoria-road North, Southsea.

Standstead.—Alterations to school and erection of new school (2,612*l.*); Messrs. Clark & Sons, builders, Godesdone-road, Cambridge.

Stoke.—Enlargement of school (9,000*l.*); Mr. R. Strather, builder, Four Oaks, Birmingham.

Stone.—Hall for St. Michael's Guild; Mr. J. S. Redman, Stonleigh, Stone, Staffs.

Strathbogie.—Alterations and additions U.F. Church (2,200*l.*); Mr. W. Kelly, 307, Union-street, Aberdeen.

Summerscourt.—United Methodist Church; Mr. N. F. Bellamy, architect, Bodmin-road, St. Austell.

Turner's Hill.—Additions to stores for the Enfield Co-operative Society.

Twisdale (Co. Durham).—School (3,000*l.*); Mr. W. Rushworth, Architect, Shire Hall, Durham.

Umsbury (near Axminster). — Rectory (2,000*l.*); Mr. H. Reed, architect, Castle-street, Exeter.

Wallsend-on-Tyne.—School (16,000*l.*); Mr. J. Forrest, architect, Moot Hall, Newcastle-on-Tyne.

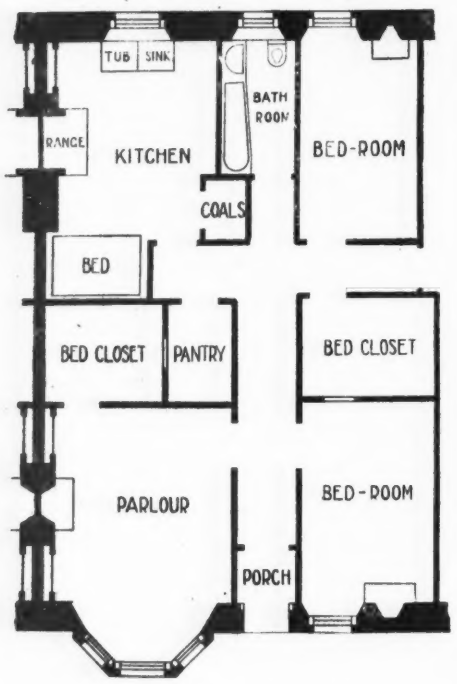
Warrington. — School, Fairhead-road (6,500*l.*); Mr. T. Longdin, Borough Surveyor, Town Hall, Warrington.

* See also our list of Competitions, Contracts, etc., on another page.

COTTAGE HOMES.*

IF the planning of streets is of such vital importance with its radical changes in that direction, is not the planning of the future homes even of greater importance? If in the past the planning of our streets has been far from perfect, have our houses been so perfectly

AN EDINBURGH TENEMENT



GROUND FLOOR PLAN

planned that no improvement is necessary or desirable? And that we must perforce continue in the old groove as the Mecca of perfection.

Let us for a moment consider the mode of life in a modern tenement, and for this purpose the accompanying plan of a main door house, similar to hundreds in and around Edinburgh, may be regarded as a typical example. The kitchen, with its sink and wash-tub placed in the window recess, the recess for a full-sized bed on the opposite side, and so arranged that a free circulation of air is impossible, the cooking range on a side wall, and what is becoming more common, a gas-cooker between the bed and the range, and the coal store opening directly off the apartment—here the family live.

The pantry placed in the centre of the building and approached from an internal passage is dependent upon the doorway for its fresh air supply, except at times when the ventilator is opened, when it may be flushed with air from the adjoining bed-closet, with what results on germ-consuming foods, perhaps only medical men know. The second internal bed-closet is dependent upon a bedroom for its so-called ventilation.

Dr. Williamson, Medical Officer of Health, has stated that the percentage of phthisical cases was greatest in one-roomed dwellings—does it not follow, therefrom, that persons who occupy the kitchen bed are living in somewhat similar conditions? And, if so, why not, in the interests of public health, at once attack the mode of living? Scottish people in England do not continue this practice, they could not even if they wished, and there are many in Edinburgh who have abandoned it, preferring to curtain off the bed-recess and therein place the gas cooker, and so screen it from view, while others use it for additional storage. Others there are who would wish to do this, but with a large family and the high rents prevailing, they have no alternative but to submit.

In the light of advance of sanitary science it is surprising that Edinburgh's building regulations still permit the sink and wash-tub being fitted within the kitchen, virtually the living-room of the family and the bedroom of some of its members—to have the necessary cleansing work of a home carried on in the same apartment where others perhaps are taking meals in surely not ideal, and requires some attention, if *only* on sanitary grounds.

That pantries should be supplied with ample means of ventilation to ensure the keeping of food in a wholesome condition surely will meet with general approval. In the cottage this is a simple matter to attain, but an additional clause in the building by-laws may be necessary to secure it.

American houses, we are told, are examples of how household labour is reduced to a minimum. I wonder if men brought about this happy state of affairs? Or was pressure brought to bear from another quarter, in a forcible manner perhaps, before it was realised that women had other vocations in life than merely rubbing and scrubbing?

In this country, do the men who build houses give the matter much consideration? The speculative builder who erects tenements by the score accepts the phrase "use and wont," and I fear never considers what is useful or what is *not wanted*.

If a committee of housewives, of the class we are considering, who perform the whole work of the household—except such assistance as they may obtain from their children—was consulted, I venture to think the first thing it would condemn would be the modern kitchen range. That this article involves quite a disproportionate amount of labour to maintain in relation to its usefulness is becoming generally recognised; as a cooking stove it has been superseded by the gas cooker, in every way its superior, and but for the hot water difficulty its life would have ended long since—even for this purpose it is wasteful in the consumption of fuel, and to be compelled to have a roaring fire in the summer months to obtain bath water is, to say the least—not ideal.

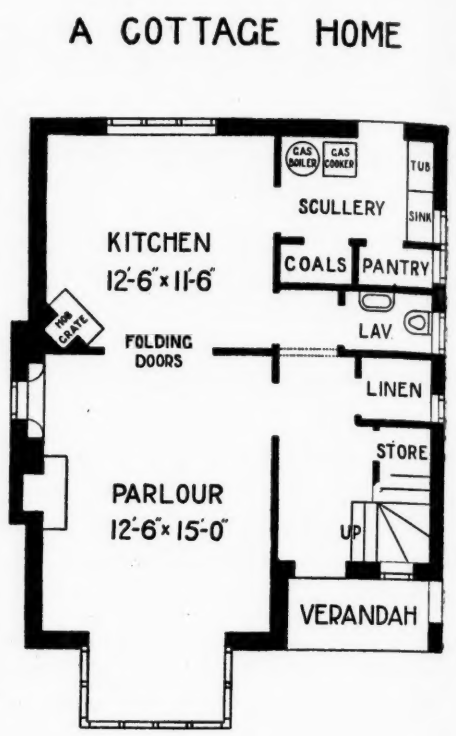
But it will be said we must have a fire in the kitchen during the winter months, true—but is it necessary to have such a costly article as the modern range merely for that purpose? Its cost, ranging from 10*l.* to 15*l.* or 16*l.*, even for quite small property, must of necessity affect the rental to the extent of from 15*s.* to 1*l.* per annum, not to mention the coal bill, and even the extra charge for sweeping its chimney.

It would be a simple matter to give instances of my personal experience where the kitchen range has been entirely enclosed with sheet iron, and an anthracite stove placed in front; or another where the kitchen has been practically abandoned, the parlour and scullery

A LONDON HOUSE

GROUND FLOOR PLAN

A COTTAGE HOME



GROUND FLOOR PLAN

forming the principal apartments; and still another in the erection of a cottage where the range was vetoed at the outset.

With these few remarks I leave the modern tenement house, and would direct your attention to my second diagram, the ground floor of a London house; it, too, is a typical example of the class we are considering, and thousands, if not tens of thousands may be seen there and in many of the provincial towns also. That they form dreary and monotonous streets, and such as we shall not wish to perpetuate in our future garden suburbs all will be agreed. But if they possess no merits externally I think the same cannot be said of them in other respects; that they are planned on hygienic principles is at once apparent, permitting a free circulation of air through the house, and obtaining at least healthy homes, so far as the over-crowded conditions in which they are placed permit, and in this connexion suggest, I think, an improvement upon our methods. It will be noted that folding doors 6 feet or more wide form part of the division between the front room and the back—and in place of a small window to the back room a French window, also 6 ft. or more wide is there found, giving ample light and air, besides being a direct approach to the back garden. Whether the latter would be suitable here may be a moot point, but the folding doors I feel would be a decided improvement if only on hygienic grounds; those who have lived in such houses—and the principle is applied in all classes except the poorest—know the convenience and comfort they afford.

In the main, then, these are the points I suggest requiring consideration for the cottage homes of our future garden suburbs. It is a simple matter, often, to make suggestions but how to effect improvements is quite another; and I fear you would regard my remarks as incomplete were I to conclude without showing in some tangible form how my suggestions could be accomplished; for that reason I display two other diagrams of a cottage home. The building—a two-storied structure—capable of erection either singly or in pairs, consists of parlour, kitchen, and scullery on the lower floor, and three bedrooms and bath-room above, and such other conveniences as are shown on the plans.

I would direct your attention to the ground floor plan, by which you will observe that essential difference between this and similar cottages or tenements is in its working portion.

The hub of the wheel being the scullery—not

* Extracts from a paper on "Cottage Homes," read at the Town Planning Exhibition, Edinburgh, by Mr. Edward C. H. Maidman, Vice-President of the Edinburgh Architectural Association.

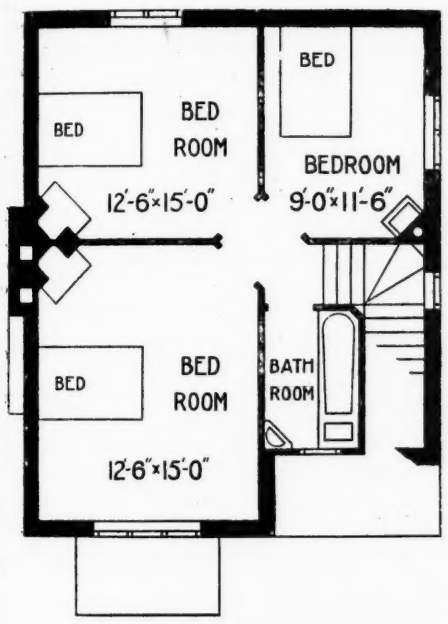
the kitchen, we have here the sink and wash-tub, a gas washing boiler, and a gas cooker—not necessarily implying that *all* the cooking must be done by gas; the gas boiler and cooker being placed against an outside wall, it becomes a simple matter to carry off all fumes *and* steam. The coal store is at hand, and coals may be delivered by the back door, saving some labour to the housewife by this method.

The pantry, too, is directly off the scullery, and has a window for light and ventilation.

The kitchen without sink and wash-tub, without bed or any other recess, and without the modern range, assumes quite a different character; presents more the appearance of a room, rather than a kitchen; here people could live in some decency. In place of a range a double hob-grate is provided of sufficient size to take two pans and permit a considerable amount of cooking to be performed thereon, so that during the winter months it would not be necessary to use the gas cooker to any extent. Hot-water is obtained by a dual arrangement; from a heater in the kitchen fire or a special gas boiler, now procurable, in the scullery, the latter capable of supplying sufficient hot water for a bath in an hour's time.

With such a kitchen the introduction of folding doors between it and the front parlour

A COTTAGE HOME



FIRST FLOOR PLAN

becomes possible and adds much to the healthiness of the home and comfort to its inmates.

Of the three bedrooms upstairs my only remark is, the smallest even could not be regarded as a box, each has a window, and, of course, a fireplace. The bathroom, also, on the upper floor, contains only the bath, a fitted-up wash-hand basin with hot and cold water, and a sink.

Doors to bedrooms will, I presume, be regarded as a necessity; whether thick curtains would not in many ways be preferable, may not meet with general approval. In my own home, bedroom doors are never closed during the night and windows only in boisterous weather, a practice extending over a period of twelve years or more cannot be regarded as not having had a fair trial, and without the disastrous results which many well-intentioned friends predicted—that my children would speedily be dispatched to a more celestial clime than that of Edinburgh.

The practice of not making all windows to open, particularly those near the ceiling, is on the increase, and I think to be deprecated.

The height of the lower story would be 9 ft. clear, and that of the upper 8 ft. 6 in.

External and internal division walls would be of bricks, external walls being of hollow construction, and the outer surface covered with cement harling; roofs slated or tiled.

To sum up the question of brick walls *versus* stone, the former will help materially to solve the financial difficulties of which we have heard so much recently, and it having been clearly indicated that unless there is a general reduction in the various heads of expenditure, the Town Planning Act would become a dead-letter in Scotland, and as one question dovetails into and is dependent upon another, the question of the material of the walls will doubtless be decided by that of finance.

It is not suggested that only one type of house should be erected for any particular class, the plan submitted is capable of adoption in many forms—either as a detached cottage, or in pairs, or at the ends of blocks of three or more, and indeed of expansion and contraction to comply with limits of cost and class.

The cost if erected to the sizes indicated by the drawings would not exceed 275*l.* if detached, and 250*l.*if in pairs, based on 4½d. per cube foot for the former.

THE ROYAL SANITARY INSTITUTE:

VENTILATION.

A PROVINCIAL sessional meeting of the Royal Sanitary Institute was held in the Royal Albert Memorial, University College, Exeter, on the 2nd inst., when a discussion took place on "Ventilation in Theory and Practice." The discussion was opened by Mr. J. Jerman, F.R.I.B.A., and the chair was occupied by Mr. H. P. Boulnois, Chairman of the Council of the Institute.

In the course of his remarks, Mr. Jerman said:—

"What appears to me to be needed are stringent regulations laid down by authority, and their execution controlled and supervised, so that the same assurance shall be given to the occupants of rooms that they are able to get pure air, as certainly as they can get pure water and pure food.

The rate of movement of the air can be ascertained, the temperature can be accurately observed, whilst the most that can be done so far appears to be the provision of certain means of ventilation, based on experimental methods and without the power of seeing exhibited results.

An ideal plan would be for a trained officer to be engaged, whose duty it would be to periodically inspect, to the minutest detail, the condition of all ventilating apparatus, to see that all ducts and openings are clear and thoroughly clean, and that the source of supply is kept pure and not subject (from subsequent additions or other circumstances) to the possibility of contamination. Such a trained officer would see that the occupants in charge of such rooms were competent to regulate the apparatus within the rooms, and to carry out the regulations. These should be printed and hung up in every public room, setting forth the principles and mode of action. The difficult part of each officer's duty would be the ascertaining for his own information the result of the inspection, and it is to be deplored that there is apparently no ready and effective apparatus for determining and showing the proportion of carbon dioxide in the air of an occupied room.

The experience of those who are connected with the supervision of buildings offers valuable opportunities for focussing data and results. Taking the case of a dwelling-house, the construction and arrangement has to comply with the building by-laws of the district. One naturally expects to find provision for ventilation, but with the exception of the merest reference to rooms without a fireplace, the entire question is left optional, with the result that in the majority of cases no provision is made at all, and the ill-fitting doors and windows are relied on for supplying fresh air, and the doubtful outlet of the fireplace, with its usually closed damper, is left to take off the impurities. The meagre references to other rooms are in this fashion: "Every habitable room . . . without a fireplace to be provided with special and adequate means of ventilation by a sufficient aperture or air shaft of the area of 100 sq. in. at least." There is no reference to inlets, and the only conclusion is that the draught from doors and windows are supposed to supply the fresh air. Further, only one sectional area is given, independently of the size of the room. Another clause provides that every new public building shall be provided with "adequate" means of ventilation. What value is to be placed on the term "adequate"? Some simple data would have been more helpful. Again, in the case of water-closets, it is directed, in addition to the window, each closet shall be provided with "adequate" means of constant ventilation by at least one air-brick built in an external wall, or by an air-shaft, or by some other effectual method or appliance. It is thus concluded that the outlet is the only needed consideration for ventilation.

With elaborate provisions for water supply and for dealing with sewage, it may be fairly expected that those responsible for the well-being of the inhabitants should, after so many years of experience, now be prepared with directions for universal use, and what would apply to the ordinary house apartment would equally apply to larger rooms used by several persons, provided comparative data were given. It must be felt that where attendance is more or less compulsory, the aspect becomes really serious, and every care should be taken that no one is liable to detention in a polluted atmosphere.

As times goes on, efforts are made to do something with the older buildings, but until this is made compulsory, the evil remains with us. Most of the older buildings have forms of windows, which, from their construction, cannot be opened either in whole or in part, and thus the only source of opportunity for changing the air is lost. The initial step for securing a good supply of pure air from an uninterrupted source has not hitherto been made a compulsory condition in arranging sites for buildings. This freedom of space from surrounding buildings and obstructions, together with the benefit of all-day sunshine, should certainly be the first step required by those who have to approve of schemes.

For the guidance of architects, the Board of Education have for many years past issued a rule respecting ventilation, and consideration of the details in this rule leaves, in my opinion, much to be desired. After stating the general principle that "there must be ample provision for the continuous inflow of fresh air, and also for the outflow of foul air," the rule goes on to say that the best way for providing for the outflow is to build to each room a separate air chimney, carried up in the same stack as the smoke flues, and that the outlet should be by a warm flue or exhaust. Then follows the ominous sentence, "otherwise it will frequently act as a cold inlet."

Here is considerable danger, as in the case of a reversal of the current (and this certainly happens during high winds and variation in the direction of the wind), the foul outlet, charged with the accumulation and deposit within it, returns its contents to pollute the air of the room. I advocate that these flues, equally with inlets, should be kept scrupulously clean, and made capable of being washed thoroughly, throughout their length.

Attention may be drawn to the suggestion that the outlet should be in contiguity to a warm flue, but there are occasions when no heating is being done, but extraction of foul air is needed.

In towns where a water supply, or electric current, is available, it is a comparatively easy matter to contrive means for inducing an upward flow, or gas can be utilised for this purpose. A difficulty presents itself in the case of county schools where such resources are not available, unless the gas from an acetylene or petrol lighting installation can be utilised. Some device of this kind appears to be needed to set the column of foul air in motion, notwithstanding the statements of the bewildering number of manufacturers, who claim that this or that make of cowl will, under all conditions effect the movement and extraction.

There are long periods when there can be no sufficient movement by external air currents to induce an upflow, and it is during these quiescent periods that assistance is most needed.

It does not seem beyond the region of possibility to have an indicator placed in the room for the information of the teacher or person in charge of the room. Some simple form of gauge might surely be devised, operated by the ascending column of foul air.

One tries hard to believe in unaided cowls of forms innumerable and more or less ugly, but there is always a lurking suspicion that they are used because it is the usual thing,

and recommended for general adoption. Probably light-running cowls are of assistance in helping the rising current in flues, but here again there are dead calm times of inaction, with negative results.

Electric radiators are used for heating the foul air, and by rarefying it causing an up-draught, as well as for warming by contact the incoming cold air.

Continuing the instruction in the rules, the important point of fresh-air inlets is next taken, and it is stated that these are best placed in the corners of rooms furthest from doors and fireplaces. Presumably, this means that illfitting doors rival the inlets with consequent disagreeable draughts, and that the flue from the fire acts as an extractor, when in operation. The positions of fresh-air inlets in order to aerate every portion of the room want more general distribution than is usually given.

I believe there can be little doubt but that the diffusion of air from the point where it leaves the inlet to the outlet point is mostly direct, leaving large areas of the room unventilated. These dead portions in this case gain little or nothing from the system, and it can therefore be urged that more continuous or, at least, frequent spacing of the air inlets over the whole periphery of the room is need so that all the occupants should get a fair share of fresh air. It is, therefore, a question whether this inflow of fresh air should not be delivered through a continuous perforated distributor at a suitable height on the wall above the heads of the occupants rather than through periodical and widely-spaced openings, perhaps one or two only in each room, leaving the greater portion of the room not touched. One thing should be insisted upon, viz., the need of absolute cleanliness in every part of the inlet apparatus. Not only should every part be readily accessible, but its surface should be such that deleterious matter could not readily adhere to it, and it should be capable of being frequently and conveniently cleaned. It is a question whether these ducts would not be better made independent of the structure and more adjustable to the needs and arrangement of the occupants of the room. Water, gas, and electric current are laid on independently of the fabric and to suit special positions, and it does not appear to be unreasonable that air should be laid on just where it is wanted.

Reference is made in the rule to the atrocious idea of avoidance of fresh air being supplied by gratings in floors. Fortunately, the now general use of solid floors has done away with this bad arrangement. Formerly, it was the practice in many cases known to most of us that the person cleaning the rooms deliberately swept the floor dust into these floor gratings; and the remark has often been heard that it was supposed that these floor inlets were put for this purpose. Although now this is unlikely to be the case, one frequently comes across fresh-air inlets, at the mouths of pipes conveying external air to be warmed by radiators, placed at the level of, and in some cases below, the level of the playground, with the attendant filling of the same by dust from the playground surface. It is not possible to get access for cleansing these pipes, and the same remark applies to the generally adopted system by which fresh air is conveyed to warming stoves.

The respective areas of the inlets and outlets reasonably depend on the arrangements, but one could have wished for some guidance in the rule beyond the statement that these must be carefully adapted to the method of ventilation proposed. Even an excess of area indicated would be better than leaving the judgment free.

Supplementary to this action of change of air by inlets and outlets, fine-weather ventilation and flushing of the air in the rooms can be effected by window openings; and in considering the style of window, it seems that the most convenient is that where sliding sashes occupy the upper portion of the opening, with provision in the lower section, below the pair of sliding sashes, of an opening the full width of the window, admitting of a glazed portion to fall inwards to encourage an upward inflow of fresh air. The rule suggests such hoppers at the top, as well as at the bottom of windows, but it is found in practice that the sliding sash gives more unobstructed opening and is more easily regulated than hoppers at the top, where they are difficult to operate, and more difficult to keep clean. Most of us see daily such hoppers in hospital and other windows laden with a deposit of dust and dirt, which gets blown into the room and diverted upwards against the ceiling to fall on the occupants. Sliding sashes are also able to be more easily cleaned than other forms of windows, from the ready accessibility to each part.

Special attention needs to be paid to the ventilation of special rooms in school buildings, such as kitchens and laboratories, and the application of any ordinary area of inlet and outlet would not apply to such apartments. They require vastly increased size of openings and extracting power to make occupation beneficial.

A further point for consideration is the need for varying the areas of inlets for fresh air in supplying rooms at different levels, and this circumstance has been recommended by some bodies, in which it is laid down that the less-favoured rooms on the ground floor should have larger inlets than those on the first floor, whilst the upper floor might have more diminished area still."

SOME BUILDINGS OF PARIS.*

PARIS has a place of honour in the list of cities which are wells of inspiration to the architect. If Paris contained no more than her cathedral, her Louvre, her Opera House, and her Musée Galliera she would be famous, but with these and all the rest she takes her place along with two or three other cities of Europe, which are presently the fountainhead of architectural tradition.

Some of the principles of architecture are common to all periods. That is a good definition of excellence in architecture which attributes it to three qualities—greatness of size, continuity of line, and simplicity of surface. If architecture was like music, independent of the direct action of the law of gravity, this definition would be nearly complete, and, in any case, excellence in architecture is based on these qualities. They are common to the styles of all times. On the other hand, the underlying spirit which expresses itself in architecture is different at different periods of time. The Cathedral of Notre Dame, Paris, and the Louvre are illustrative of this.

The Cathedral of Notre Dame belongs to that period of Gothic architecture when the principles of proportion and stability had been mastered and the riot of ingenuity had not commenced.

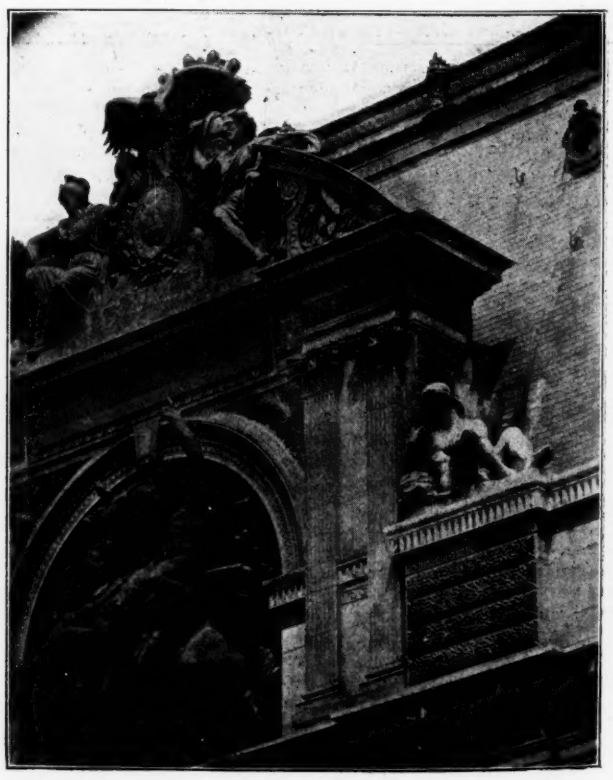
An inspection with understanding of the building shows that the great architectural masses and members, the buttresses, etc., were either utilitarian or structural in their origin; that the detailing of the more important parts of the building was directly connected with some structural requirement; and that all the ornament, except the most minor was essentially structural complication of some sort.

There is a wonderful resemblance between the architectural effect of the Greek colonnade and the row of buttresses to the nave of Notre Dame. In each case use is made of the reiteration of great simple masses to impart rhythm to the building. The plan of the building, the necessities of the structure, and the architectural effect have been focussed into one form—the buttress.

In the design of the tower the same principle holds good. The broad treatment round the arches, architecturally valuable, is structurally of use. The thick wall of the tower required three arches in its depth to support it. These arches are definitely shown. The pierced parapets and the heads of the buttresses are purely ornamental, but not in the sense of being applied ornament. They are structural complications of the wall face. The only unstructural features are the crockets and the chimeræ, the queer beasts. The

* A paper read by Mr. Vernon Constable before the Glasgow Technical College Architectural Craftsmen's Society on February 3.

The Louvre: Pavillon de Flore.



The Louvre: Detail of South Front.

detail showing the south transept brings out these points again. The rose window is a structural complication of the window opening. The other details can be described in the same terms. The detail of the window in the front shows again the deep ingo to the arch in the thick wall.

The Louvre, Paris, was originally a royal palace. The earlier parts were built in the XVIth and XVIIth centuries, the later parts in the XIXth century. This building is a complete contrast with the cathedral. In the detail shown of the oldest portion—that the greater part of the ornament has no structural meaning at all—that part of the decoration which is remotely structural in origin, the column, is not a part of the building, but a separate structure overlaid upon the building. In some places the forms used are unstructural, as, for instance, the panel in the architrave, which does not rest upon the caps of the columns, but seems ready to slip down between them. The surface modelling of the building has no connexion with its anatomy. The same principle, or want of principle, can be followed throughout the building. In the detail of the Pavillon Richelieu, dating 1860, the upper part of the column is shown in one case carrying a sculpture group, in the other a console.

In the east front of which the centre part is shown the chief architectural masses belong to structure overlaid on to the main building. The Pavillon Sully, dated 1806, shows the same usages.

In the detail of the Pavillon de Fiore, south front, we have a complex arrangement of architectural detail having no structural meaning. Such a comparison applies more or less between Gothic and Renaissance architecture everywhere.

The intention of all architectural ornament is to create a certain effect on the mind with views. A subjective condition is caused by an objective arrangement. The Gothic builders bound themselves down to use arrangements coincident with the structure, the Renaissance architects did not.

There is no criterion by which either usage may be justified as long as the acceptance of structure does not lead to ugliness and the following of beauty to licence.

A study of the tower of Notre Dame shows that Gothic ornament of that period consisted entirely of conventional forms. The crockets are leaf forms conventionalised beyond the requirements of the material in which they were carved. Renaissance ornament (excepting the Orders), as seen in the Louvre, in the views of ceilings, for instance, are natural forms, as natural as the materials will permit.

There is a suspicion that the mediæval builder understood ornament as necessary in the building up of the great unique effect his structure was to have, and having no separate identity of its own, and that the Renaissance builder often used his ornament as being something in itself beautiful, and as being one of a number of beautiful parts related to the whole only by their proximity. The Gothic building was a single idea, the Renaissaince building was often the sum total of a number of ideas.

This criticism is hardly of general application. The east front of the Louvre contains few natural forms to cross and recross the main idea, but in the detail of the Pavillon de Fiore the mind is distracted by the ideas of the children in the spandrels and the beautiful group below.

Where the subsidiary idea is easily read and pertinent in meaning, as in the Panathenaic frieze, the usage is quite correct, for then the subsidiary idea does not impede the effect of the main idea. The evolution of mediæval architecture was little hampered by tradition, and the forms attained were constantly under the action of structural requirements, so that it was hard for any of these forms to stray far from the standard. The mediæval builder of this period had a hatred of mere beauty, that vanity of vanities. He was more intent on expressing the stern moods of his religion.

Renaissance architecture was not an evolution of the same type. The forms used had long lost all meaning, and they had been used again before the meaning had been fully discovered. Renaissance architecture had a development quite apart from Renaissance building. This development was the elimination of forms and proportions unpleasing to the eye and the discovery of pleasing forms. The problems of Renaissance architecture were problems of planning, both horizontal and vertical, not structure, and structure could not be the determining agent. Renaissance architecture must be judged on this basis and evolve under this guidance.

TRADE CATALOGUES.

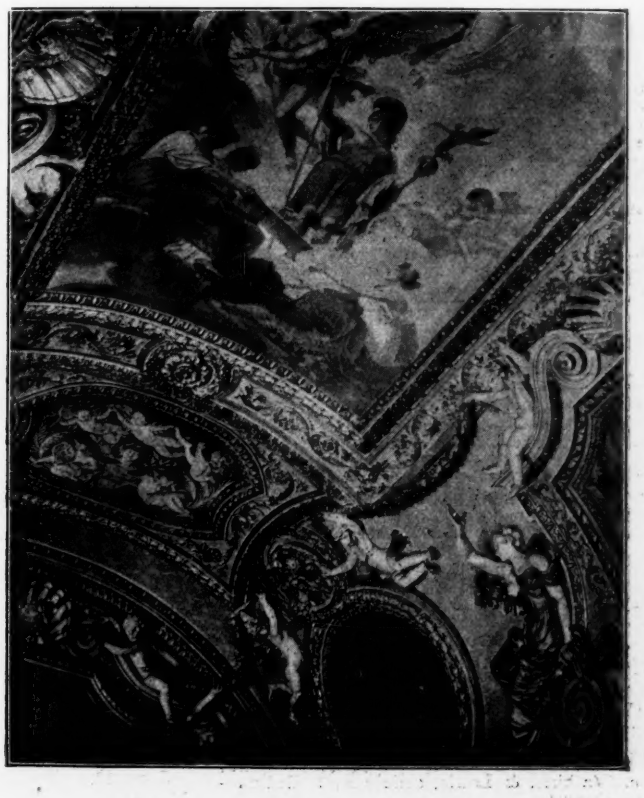
We have received from Messrs Richard Johnson, Clapham, and Morris, Ltd., of Manchester, a pamphlet entitled "Wire Work for all Industries." This catalogue, specially prepared for engineers and manufacturers, describes and illustrates numerous forms of wire guards for the protection of machinery, heating apparatus, electric lamps and fans, as well as window, balcony, gangway, light well lift, and counter guards. It also contains particulars of wire-panelled doors, partitions, drying racks, lockers, letter and parcel racks, baskets, trays, and other useful applications of wire work. Towards the end of the book illustrations and brief details are given of Johnson's wire lattice system of reinforced concrete, reinforced brickwork, woven wires for various industries, sieves, screens, and conveyor belts. The catalogue shows how manifold are the uses of wire work, and a copy should certainly be on the bookshelf of every architect and builder.

At a time like the present, when the preparations for the Coronation festivities are becoming more and more apparent, and Londoners are hastening to show their loyalty by concealing behind huge stacks of timber the very few specimens of genuine architecture which they possess, it is with peculiar pleasure that we welcome any attempt to mitigate their temporary eclipse. Messrs. Jeffrey & Co., of 64, Essex-road, Islington, and 31, Mortimer-street, London, W., forward us illustrations of the "Coronation decoration," designed by Mr. Frederick Vigers, which they are now bringing out, a design expressly produced for the exterior decoration of stands, balconies, and houses. It is printed in oil on red and blue canvas and other bright-coloured materials. It is supplied in single widths, about 33 in. wide, the design, a genuinely artistic one, consisting of crowns, roses, thistles, and shamrocks, conceived in a good Tudor convention. A number of single widths may be combined where a deep hanging is required.

Messrs. John Bryden & Sons, of Edinburgh, Glasgow, and Dundee, and 15, Glendower-place, London, S.W., forward us a catalogue and price list of lifts, church bells, revolving shutters, telephones, electric and mechanical bells, window blinds, etc. The firm make a speciality of dinner service lifts, which they supply at extremely reasonable prices in a large variety of stock sizes. They also manufacture electric service lifts for passengers or goods, and specially call our attention to Barlow's patent electric lift gear. This contrivance has been specially designed for lifts working between two floors only. It is claimed that the cage cannot over-wind at either end of its travel, and that the motion of starting and stopping is more gradual and regular than with any other lift gear. The gear, in its smaller size, should prove very suitable for dinner lifts and other small hoists of the same type, while in the larger sizes it should be found well adapted for luggage and all kinds of goods lifts, and, in particular, for short passenger point-to-point work. Among other specialities supplied by the firm we notice the "Primax" system of automatic inter-communication telephones, a system which, it is claimed, effectually eliminates the possibility of a conversation being overheard.

The Louvre: "Salle des Saisons."

By Michael Anguier.



The Louvre: Ceiling in the Salle Micene.

By Michael Anguier, *circa* 1650.

List of Competitions. Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this Number: Competitions, iv.; Contracts, iv. vi. viii. x.; Public Appointments, xvi.; Auction Sales, xxii.

Certain conditions beyond those given in the following information are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bonâ-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

***** It must be understood that the following paragraphs are printed as news, and not as advertisements; and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur.**

Competitions.

JUNE 15. — **Lowestoft.** — SCHOOL. — The Lowestoft Education Committee invite designs for an elementary school. Premiums offered, 21*l*.. 10*l*. 10s., and 5*l*. 5s. See advertisement in issue of February 10 for further particulars.

JUNE 28.—**Newton Abbot, Devon.**—BUILDINGS FOR AGRICULTURE AND TECHNICAL INSTRUCTION, SEALE-HAYNE COLLEGE, NEWTON ABBOT.—The Governors invite designs and estimates. The assessor is Mr. C. Steward Smith, F.R.I.B.A., of Reading. Premiums 100*l*., 50*l*., 30*l*.

JULY 1.—**Swansea.**—CHAPEL, SCHOOLROOM, ETC. —Designs are invited for chapel, schoolroom, and classrooms at Swansea. See advertisement in issue of May 19 for further particulars.

JULY 31. — **Wellington.** — NEW PARLIAMENT BUILDINGS.—Premiums of 1,000*l*., 500*l*., 300*l*., and 200*l*. are offered for the competitive designs. Particulars from the Minister of Public Works, Wellington, New Zealand.

AUGUST 15.—**Berne.**—MONUMENT.—Designs for the erection of a monument at Berne to celebrate the foundation of the International Telegraph Union. Conditions may be seen in the library of the Royal Institute of British Architects.

SEPTEMBER 12-25.—**Athens.**—COURT OF JUSTICE. —An international competition is instituted by the Ministry of the Interior, for the erection of Court buildings, to cost 160,000*l*. The *Official Gazette* may be seen at the Library of the R.I.B.A.

NOVEMBER 1. — **City of St. Petersburg.** — MONUMENT TO ALEXANDER II.—Particulars in our issue of August 13, 1910.

DECEMBER 29. — **Glasgow.** — DESIGN FOR A BRIDGE.—Designs are invited (Alexander Thomson Travelling Studentship) for a bridge. Preminums of 60*l*. and 20*l*. are offered. See advertisement in issue of December 24 for further particulars.

* NO DATE. — **Holland.** — STAINED GLASS WINDOW.—Designs are invited for a stained glass window to be erected in the University at Groningen. See advertisement in this issue for further particulars.

NO DATE. — **Inverness.** — REMODELLING OF ASSEMBLY ROOMS.—The Stewards of the Northern Meeting invite designs for remodelling of the Northern Meeting Assembly Rooms in Inverness. See advertisement in issue of March 10 for further particulars.

NO DATE. — **Littleborough.**—SHOP, ETC.—The Littleborough Co-operative Society invite competitive plans for the erection of a branch shop and dwelling-houses at Centre Vale, Littleborough. Full particulars from the offices of the society, 44, Hare Hill-road, Littleborough.

NO DATE. — **Yeovil.** — LAYING-OUT SITE AND HOUSES.—The Yeovil Corporation invite designs for (1) laying-out site; (2) for houses to be erected thereon. Premiums are offered. See advertisement in issue of May 12 for further particulars.

Contracts.

BUILDING.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

JUNE 9.—**Elgin.**—ADDITIONS.—Works of additions to Inveravon School. Plans and specifications with Mr. C. C. Doig, architect, Elgin.

JUNE 10. — **Buckingham.** — PEDIMENT.—New stonework to pediment over the entrance to Workhouse. Specifications from Mr. Thomas R. Hearn, Clerk, 26, West-street, Buckingham.

JUNE 10. — **Cornwall.** — CLOAKROOMS, ETC.— Erection of cloakrooms, offices, etc., at the Stokeclimsland Council School. Plans and specification with Mr. B. C. Andrew, Architect to the Committee, Biddick's-court, St. Austell.

JUNE 10.—**Devon.**—HOUSE, ETC.—Erection of a bullock's house and stable at Coomery Farm, in Cornworthy. Plans and specification with Mr. W. F. Tollit, architect and surveyor, Totnes.

JUNE 10. — **Fforestfach.** — POLICE-STATION.— Erection of a police-station. Plans and specification seen, and quantities from Messrs. Hartland, Isaac, Watkins, & Lewis, solicitors, 7, Rutland-street, Swansea.

JUNE 12. — **Ayr.** — WATER WORKS. — Water supply for the Loch Bradan water supply district. Specification and quantities from the engineers, Messrs. J. & H. V. Eaglesham, 24, Wellington-square, Ayr, on deposit of 2*l*. 2s.

JUNE 12. — **Cardiff.**—RENOVATING, ETC.—Altering and renovating premises, Nos. 11, 13, 15, Newport-road. Plans and specification seen, and quantities from Mr. John W. Rodger, architect, 14, High-street, Cardiff.

JUNE 12. — **Grimsby.** — BATHROOMS.—Erection of bathrooms at the public convenience. Quantities and plan from Mr. H. G. Whyatt, A.M.Inst.C.E., Borough Engineer and Surveyor, 170, Victoria-street, Grimsby, on deposit of 2*l*. 2s.

JUNE 12. — **Ilfracombe.**—RESIDENCE.—Erection of a residence. Messrs. S. J. Wilde & Son, Weston-super-Mare, and Mr. H. W. Weir, Ilfracombe, joint architects.

JUNE 12. — **Maghera, Ireland.**—SCHOOL.—For building a machine embroidery school. Quantities from Mr. S. C. Hunter, quantity surveyor, 2, Wellington-place, Belfast, on deposit of 1*l*. 1s. Mr. J. St. John Phillips, A.R.I.B.A., architect, 16, Donegall-square South, Belfast.

JUNE 12.—**Risca.**—SHOPS.—Erection of shops. Quantities, on deposit of 3*l*. 3s., from Mr. Stanley H. Hutchins, architect, Risca.

JUNE 12. — **Salisbury.**—BATHROOM.—Erection of a bathroom, etc. Plan and specification with Mr. W. J. Goodwin, A.M.Inst.C.E., City Engineer and Surveyor, Municipal Offices, Salisbury.

JUNE 14. — **Caerwys.**—CLASSROOM.—Construction of an additional classroom to the Caerwys Church of England Schools. Plans and specifications at the Caerwys Rectory. Mr. Philip Ll. Dykins, P.A.S.I., architect and surveyor, Holywell.

JUNE 14. — **Churwell.**—WAREHOUSE.—Erection of warehouse. Plans and specifications seen, and quantities from Mr. T. A. Buttery, L.R.I.B.A., architect, 1, Basinghall-square, Leeds.

* JUNE 14. — **Stoke-on-Trent.**—SCHOOL.—The Staffordshire Education Committee invite tenders for new school and cookery centre at Milton, near Stoke-on-Trent. See advertisement in this issue for further particulars.

JUNE 15.—**Cheltenham.**—BLOCK.—Erection of a block at the Naunton Park Council Schools. Plans and specifications with Messrs. Chatters & Smithson, architects.

JUNE 15. — **Glasgow.** — EXCAVATING.—For the excavating work in connexion with Glasgow Head Post-office extension. Drawings with Messrs. Robert Scott & Sons, 115, Wellington-street, Glasgow. Quantities from H.M. Office of Works, 3, Parliament-square, Edinburgh, on deposit of 1*l*. 1s.

JUNE 15.—**Nigg.**—LANDING SLIP.—Construction of a landing slip at Cromarty Ferry. Plan and specifications with Mr. P. Hay, Estate Office, Cromarty.

JUNE 16. — **Ferndale, Glam.** — SCHOOL.—Enlargement of the Dyffryn Council School at Ferndale. Plans and specifications seen, and quantities, on deposit of 2*l*. 2s., from the architect, Mr. J. Rees, Hillside Cottage, Pentre.

JUNE 16.—**Needham Market.**—REPAIRS, ETC.— Repairs and new work at Ivydene. Plans and specifications from Mr. Herbert Smith, Building Inspector, High-street, Needham Market.

JUNE 16. — **Pyle.** — CHAPEL.—Erecting a new chapel and schoolroom. Plans and specifications with Messrs. Evans & Jones, architects, High-street, Port Talbot.

JUNE 16. — **Salisbury.** — ROOMS, ETC. — For building an assembly-room, classrooms, etc. Drawings and specifications with Mr. F. Bath, F.R.I.B.A., F.S.I., architect and surveyor, Crown-chambers, Salisbury.

JUNE 17. — **Aberystwyth.**—REBUILDING.—For rebuilding Ffoarhydgaled. Plans, specification, and drawings from Mr. G. T. Bassett, A.R.I.B.A., architect and surveyor, Aberystwyth.

JUNE 17.—**Newton Abbot.**—HOUSES.—Erection of two dwelling-houses. Plans and specifications at the office of the Newton Abbot Co-operative Society, Ltd., 21, Queen-street, Newton Abbot.

JUNE 17.—**Southampton.**—DRILL HALL.—Erection of a drill hall. Drawings, specification, and conditions of contract at the offices of the architect, Mr. R. H. P. Bevis, Elm Grove-chambers, Southsea. Quantities on deposit of 3*l*. 3s.

JUNE 19.—**Abertridwr.**—SHOPS, ETC.—Erection of three shops, etc., for Senghenydd and Aber Valley Co-operative Society, Ltd. Plans and specifications at the offices of the society.

JUNE 19. — **Barmoor.**—RESIDENCE.—Erecting a residence. Plans and bills of quantities seen with Mr. L. A. Loades, A.R.I.B.A., architect, Market-place, Morpeth.

JUNE 19. — **Guildford.** — REPAIRS, ETC.—Additions, alterations, paintwork, and repairs to the elementary schools. Plans and specification seen with the Borough Surveyor, Mr. C. G. Mason, A.M.Inst.C.E., Tuns Gate.

JUNE 19. — **London.**—BUILDINGS.—Erection of buildings at Electric Lighting Station, Tottenham-lane, Hornsey. Plans and specifications seen, and quantities from Mr. E. J. Lovegrove, Borough Engineer and Surveyor, Municipal Offices, Highgate, N.

JUNE 19. — **Sleaford.**—CELLS, ETC.—Erection of new cells, charge-room, and sergeant's house to Sleaford Police-station. Drawings and specification seen, and quantities from the County Architect, Mr. J. Clare, Sleaford, on deposit of 3*l*. 3s.

JUNE 20. — **Durham.** — HALL.—Erection of the Miners' Hall at New Kyo. Mr. Thos. Welsh, Holly-terrace, Stanley, S.O.

JUNE 20.—**Guisborough.**—LABORATORY, ETC.— Erection of a science laboratory and gymnasium. Quantities, on deposit of 2*l*. 2s., from Mr J. R. Batterbee, Clerk to the Governors, Guisborough, Yorks.

JUNE 20.—**Holly Bush, Mon.**—HOUSES.—Erection of twenty-four houses. Plans and specifications with Mr. Ralph Simmonds, architect and surveyor, Blackwood and Holly Bush.

JUNE 20. — **Merthyr Tydfil.**—HOUSES.—Erection of forty-five houses at Caemarydwn. Plans and specifications with the architect, Mr. Rees Morris, "Idrisville," Merthyr Tydfil

JUNE 21. — **London.**—SUBWAY, ETC.—Construction of a subway and underground sanitary conveniences at the Broadway, Hammersmith. Plans seen, and specification and bill of quantities from Mr. H. Mair, Borough Surveyor, Town Hall, Hammersmith, W.

JUNE 21. — **Merthyr Tydfil.**—HOUSES.—Erection of twenty-seven houses. Plans and specifications with Mr. Rees Morris, "Idrisville," Merthyr Tydfil.

JUNE 22. — **Gosport.** — SESSIONS COURT, ETC.— Reconstruction and enlargement of the Petty Sessional Court, the erection of magistrates' room and offices, together with certain alterations to the police-station. Plans and specification seen, and quantities from Mr. W. J. Taylor, County Surveyor. The Castle, Winchester, on deposit of 2*l*. 2s.

JUNE 24. — **Denholme.**—ALTERATIONS.—Alterations, etc., to Denholme D.C. School. Plans seen, and quantities, on deposit of 1*l*., from the Education Architect, County Hall, Wakefield.

JUNE 24. — **Smallburgh.**—COTTAGES.—Erection of six cottages in Horning and six cottages in Happisburgh. Plans seen, and specifications on deposit of 1*l*. 1s., from Mr. Fairfax Davies, Clerk to the Council, North Walsham.

JUNE 24.—**Stockport.**—EXTENSIONS.—Dialstone-lane Hospital extension. Quantities from the architect, Mr. James Jepson, 35, Great Underbank, Stockport, on deposit of 3*l*. 3s.

JUNE 26. — **Droxford.** — REPAIRS.—General repairs to buildings at the Droxford Workhouse. Specifications with Mr. H. Godfrey Pearson, Clerk, Bishop's Waltham.

JUNE 26. — **Nottingham.** — ALTERATION, ETC.— For the alteration and adaptation of the "Residence," Edwards-lane, for the accommodation of children. Specifications and particulars from Mr. W. B. Starr, architect, 12, Victoria-street, Nottingham. Deposit of 2*l*. 2s.

JUNE 27. — **Southall.** — COVERED-WAY.—Construction of an iron and glass covered-way. Plans and specifications seen, and forms of tender from Mr. Reginald Brown, A.M.Inst.C.E., F.S.I., etc., Engineer and Surveyor, Public Offices, Southall.

* JUNE 30. — **Sennen Cove.** — COASTGUARD BUILDINGS.—Tenders are invited for erection of new coastguard buildings at Sennen Cove, near Land's End. See advertisement in this issue for further particulars.

* JULY 3. — **Stopsley.**—SCHOOL.—The Bedfordshire C.C. invite tenders for new Council school See advertisement in this issue for further particulars.

* JULY 4.—**Hemel Hempsted.**—SCHOOL.—The Hemel Hempsted Local Education Authority invite tenders for new school at Two Waters. See advertisement in this issue for further particulars.

* JULY 8. — **Wilmington, Kent.** — SCHOOL.— The Kent Education Committee invite tenders for new Council school at Wilmington, Birchwood Corner, Kent. See advertisement in this issue for further particulars.

* JULY 10. — **Bexhill.**—INFANTS' SCHOOL.—The Bexhill Education Committee invite tenders for an infants' school. See advertisement in this issue for further particulars.

BUILDING—*continued.*

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

JULY 10.—**South Bank-in-Normanby.**—TOWN HALL BUILDINGS.—Purchase and pulling down of the existing Town Hall Buildings at South Bank. Particulars from Mr. C. W. Cockersoll, C.E., Surveyor to the Council.

✱ JULY 17. — **Gateshead.**—LUNATIC ASYLUM.—The Gateshead Corporation invite tenders for superstructure of new lunatic asylum on the West Duddo Estate, near Stannington and Morpeth. See advertisement in this issue for further particulars.

NO DATE.—**Buxton.**—INSTITUTE.—Erection of a church institute. Plans seen, and quantities from Messrs. Bryden & Walton, architects, 3, George-street, Buxton.

NO DATE. — **Croft-on-Tees.**—STABLING, ETC.—Erection of new stabling, coach-houses, and grooms' accommodation. Plans and quantities with Messrs. Clark & Moscrop, FF.R.I.B.A., architects, Feethams, Darlington.

NO DATE. — **Farnborough.** — THEATRE. — Proposed cinematograph theatre. Apply to Mr. G. S. Valentin, theatre architect, 18, Charing Cross-road, London, W.C.

NO DATE.—**Ipswich.**—SANATORIUM.—Quantities on deposit of 2*l.* 2s. from Mr. H. M. Cautley, architect, 32, Museum-street.

NO DATE. — **Keighley.**—SCHOOL.—Erection of new school. Quantities from the architect, Mr. A. P. Harrison, M.S.A., 136, Highfield-lane, Keighley, after June 10.

NO DATE.—**Kendal.**—REBUILDING, ETC.—Pulling down and rebuilding the Bishop Blaize Inn. Plans and quantities from Mr. John Hutton, M.R.S.I., architect, Kendal.

NO DATE.—**Knutsford.**—CLUB.—Erection of a Conservative club. Apply to Mr. C. R. Longe, Tatton Park, Estate Office, near Knutsford. Deposit 1*l.* 1s.

NO DATE. — **Loftus.** — SCHOOL.—Erection of a new school at Loftus. Quantities from Mr. J. C. Wrigley, Secretary, Education Offices, County Hall, Northallerton.

NO DATE.—**London.**—EXTENSION.—Erection of extension to the South-Western Polytechnic Institute, Manresa-road, Chelsea, S.W. Drawings, specification, and conditions of contract with the architect, Mr. Frederick G. Knight, F.R.I.B.A., of 13, Victoria-street, Westminster, S.W.

NO DATE. — **Longwood.**—SHED.—Erection of a teazing shed at Cliffe End Mills. Messrs. C. F. Mallinson & Son, surveyors, Market-place, Huddersfield.

NO DATE.—**Moorsholm.**—CHAPEL.—A Wesleyan chapel. Quantities from Rev. Holmes Keall, 28, Redcar-road, Guisborough.

NO DATE. — **Nantyglo.** — ADDITIONS.—Alterations and additions to the Ffosmain Inn. Plans and specifications seen, and quantities from Mr. B. J. Francis, architect, Abergavenny.

NO DATE.—**North Staffordshire.**—INFIRMARY.—Additions to the Albert Ward and other small alterations. Names to Messrs. R. Scrivener & Sons, architects, etc., Howard-place, Hanley.

✱ NO DATE. — **Ovingdean.** — HOME. — The Trustees of St. Mary's Home, Ovingdean, Sussex, invite tenders for first portion of new building. See advertisement in this issue for further particulars.

ENGINEERING, IRON, AND STEEL.

JUNE 12.—**Ireland.**—BRIDGE.—Construction of a bridge at Aughavannagh. Plan and specification at County Surveyor's Office, Wicklow.

JUNE 12. — **Motherwell.** — DIVERSION. — The Caledonian Railway Company invite tenders for the construction of a diversion of Bridge-street, Motherwell. Drawings seen at the office of the Company's Engineer, Buchanan-street Station, Glasgow. Specification on payment of 2*l.* 2s.

JUNE 12. — **Muirkirk.** — BRIDGES.—The Caledonian Railway Company invite tenders for the renewal of the superstructures of ten underbridges on the Muirkirk Branch. Drawings seen at the office of the Company's Engineer, Buchanan-street Station, Glasgow. Specification on payment of 2*l.* 2s.

JUNE 14.—**Ponteland.**—RAILWAY.—The North-Eastern Railway invite tenders for the construction of a single line of railway. Plans and specification seen, and quantities from Mr. Charles A. Harrison, the Company's Engineer, Forth Banks, Newcastle-on-Tyne.

JUNE 22.—**Dorchester.**—BRIDGE.—For a bridge over the River Hooke at Lower Kingcombe. Plan and specification seen and particulars from Mr. F. T. Maltby, A.M.Inst.C.E., South-street, Dorchester.

✱ JUNE 26.—**Walthamstow.**—TURBINE GALLERY.—The Walthamstow U.D.C. invite tenders for the steelwork for construction of steel turbine gallery at Generating Station, Exeter-road, Hoe-street. See advertisement in this issue for further particulars.

JUNE 27. — **London.** — BRIDGE. — The Great Western Railway invite tenders for the reconstruction of Ladbroke-grove Bridge, near Westbourne Park Station. Plans and specification seen and quantities from the Engineer, Paddington Station, London.

JUNE 29.—**Bath.**—DESTRUCTOR.—Erection of a six-cell high-temperature refuse destructor. Site plan, specification, and particulars at the City Surveyor's Office, Guildhall, Bath, on deposit of 1*l.* 1s.

JULY 8.—**Brackenhill.**—RAILWAY. — Construction of the Brackenhill Light Railway. Plans seen and specification and quantities from Mr. C. F. Benough, Engineer to the Light Railway Company, York.

FURNITURE, PAINTING, MATERIALS, etc.

JULY 11.—**Liskeard.**—PAINTING.—For exterior painting, etc., and interior colouring of the County School. Mr. C. A. Hall, District Clerk, Liskeard.

JUNE 12.—**Halifax.**—PAINTING.—For the painting of North Bridge. Specifications on deposit of 5*l.* from Mr. J. Lord, M.Inst.C.E., Borough Engineer, Town Hall, Halifax.

JUNE 13. — **Bury St. Edmunds.** — PAINTING, ETC.—For painting, etc., at the Council schools. Specifications from the Building Inspector, Mr. A. A. Hunt, Shire Hall, Bury St. Edmunds.

JUNE 13.—**Carlisle.**—PAINTING.—For the painting and other works at four of the elementary schools. Specification and full particulars, on deposit of 10s. 6d., from Mr. Henry C. Marks, M.Inst.C.E., Surveyor, 36, Fisher-street, Carlisle.

JUNE 13. — **Halifax.** — PAINTING. — For the painting of sundry schools. Plans and specifications with Mr. J. Lord, M.Inst.C.E., Borough Engineer, Town Hall, Halifax, on deposit of 5*l.*

JUNE 14. — **London.** — REPAIRS, ETC.—Painting and repairing certain parts of the schools and infirmary, near Edgware. Specifications on deposit of 2*l.* 2s. from Mr. F. J. Seabrook, Clerk to the Guardians, Union Offices, Edgware.

JUNE 15.—**Cheltenham.**—PAINTING, ETC.—For painting and colouring at schools. Specifications from Messrs. Chatters & Smithson, architects.

JUNE 15.—**Jarrow.**—COLOURING.—Cleaning and colouring of the church. Specifications from Mr. John Leftley, 63, Croft-terrace, Jarrow-on-Tyne.

JUNE 15.—**Morley.** — PAINTING.—For painting the Council schools. Particulars from Mr. W. E. Putman, A.M.Inst.C.E., Borough Engineer and Surveyor, Town Hall, Morley.

JUNE 16. — **Rhondda.** — PAINTING, ETC.—For painting and colouring schools. Specifications with the architect, Mr. Jacob Rees, Hillside Cottage, Pentre.

JUNE 17.—**Wigan.**—PAINTING.—For painting, etc., at the schools. Specification and particulars from Mr. G. H. Mockler, Director of Education, Education Offices, Wigan.

JUNE 19.—**London.**—PAINTING, ETC.—Cleansing, repairs, and painting of various schools, and construction of iron staircases at West Ham. Specification, on deposit of 1*l.*, from Mr. William Jacques, A.R.I.B.A., Architect to the Education Committee, 2, Fen-court, Fenchurch-street, E.C.

✱ JUNE 19. — **Salford.** — TERRA-COTTA. — The Salford Education Committee invite tenders for vitreous buff terra-cotta for Nashville-street School. See advertisement in this issue for further particulars.

✱ JUNE 21. — **Fulham.** — PAINTING, DISTEMPERING, ETC.—The Guardians of St. George's Union invite tenders for painting, distempering, general repairs, etc., at the Infirmary in Fulham-road, S.W. See advertisement in this issue for further particulars.

JUNE 29. — **Liskeard.** — PAINTING. — For the painting of the Upton Cross and Sharpland schools. Mr. C. A. Hall, District Clerk, Liskeard.

ROADS, SANITARY, AND WATER WORKS.

JUNE 12.—**Blackburn.**—STREETS.—For paving the streets. Plans and specifications with Mr. W. Stubbs, A.M.Inst.C.E., Borough Engineer, Municipal Offices, Blackburn.

JUNE 12.—**Boughton Monchelsea.**—DRAINAGE.—Redrainage of offices at the school. Specifications with the Committee's Architect, Mr. Wilfrid H. Robinson, of Caxton House, Westminster.

JUNE 12.—**Bromley (Kent).**—STREETS.—Making good roads. Plans and sections seen and specifications from the Surveyor, Maulden House, Sidcup Hill, Sidcup, Kent, on deposit of 1*l.* 1s.

JUNE 12. — **Harpenden.** — SEWERAGE. — For sewerage and sewage disposal works. Engineer, Mr. A. P. J. Cotterell, 26, Victoria-street, Westminster. Plans with Mr. C. W. Latter, 73, Doughty-street, London, W.C. Deposit of 5*l.*

JUNE 12.—**Ilford.**—ROADS, ETC.—Laying granite channelling. Specification seen and forms of tender from Mr. Herbert Shaw, M.Inst.C.E., Engineer and Surveyor to the Council, Town Hall, Ilford.

JUNE 12.—**Leeds.**—STREETS.—For paving and flagging private streets. Drawings at the City Engineer's Office, Municipal Buildings.

JUNE 12. — **London.** — STREETS.—For kerbing, channelling, etc., for the Camberwell Borough Council. Specification from Mr. W. Oxtoby, Borough Engineer, Town Hall.

JUNE 12.—**Manchester.**—STREETS.—For street works. Forms of tender from the Paving, etc., Department (Surveyor's Office), Town Hall, Manchester.

✱ JUNE 12. — **Minster-in-Sheppey.** — NEW DRAINAGE WORK. — The Kent Education Committee invite tenders for new drainage work at Council school, Minster-in-Sheppey. See advertisement in this issue for further particulars.

JUNE 12.—**Rawmarsh.**—STREETS.—For making-up streets. Plans seen, and quantities from the Surveyor's Office.

JUNE 13. — **Crewe.** — STREETS. — For making streets. Plans and specifications seen with Mr. G. Eaton-Shore, Borough Surveyor, Earle-street, Crewe. Deposit of 1*l.*

JUNE 13. — **London.** — PAVING, ETC.—Repair of the tar and asphalt paving for the Tottenham U.D.C. Apply to Mr. W. H. Prescott, M.Inst.C.E., Engineer to the Council, at the Council Buildings, The Green, Tottenham.

JUNE 13. — **Tynemouth.**—PAVING.—For laying paving. Plans and specifications with Mr. J. F. Smillie, Borough Surveyor.

JUNE 14.—**Ashford.**—ROADWAY.—For making a permanent main roadway at the Gasworks. Specification and particulars from Mr. H. R. Turner, Engineer and Manager, Gasworks, Ashford, Kent.

JUNE 14. — **Enfield.** — GRANITE.—Supply of broken granite. Mr. R. Collins, Surveyor, Public Offices, Enfield.

JUNE 14. — **Groombridge.** — SEWERAGE. — For sewer extension. Quantities, on deposit of 1*l.* 1s., from Engineer and Surveyor, Mr. C. Turton, 6, High-street, East Grinstead.

JUNE 14.—**Hastings.**—SEWERS.—Laying of pipe sewers and other work. Drawing and specification seen at the office of the Borough Engineer, Mr. P. H. Palmer, M.Inst.C.E., Town Hall, Hastings.

JUNE 14. — **London.**—STREETS.—For making-up private streets for the Enfield D.C. Plans and specifications with Mr. Richard Collins, Surveyor, Public Offices, Enfield.

JUNE 14. — **Smalley.**—SEWER.—Construction of sewer. Plans, sections, specification, and quantities with Mr. R. C. Cordon, Engineer and Surveyor, Duffield.

JUNE 15.—**Lichfield.**—SEWER.—For relaying a sewer. Plans and specification with Mr. C. O. Rawstron, District Surveyor, Union Workhouse, Lichfield. Deposit of 1*l.* 1s.

JUNE 15.—**Rawtenstall.**—PAVING, ETC.—Sewering, paving, flagging, etc., of streets. Plans and sections seen, and specifications and quantities from Mr. Jas. Johnson, C.E., Borough Surveyor, Municipal Offices, Rawtenstall, on deposit of 2*l.* 2s.

JUNE 19. — **Earsdon.**—STREETS.—For executing street works. Plans and specification with the Surveyor, Mr. J. R. Macmillen, Council Offices, Shiremoor.

JUNE 19. — **Palmer's Green.** — SEWERS.—Construction of about 5,000 ft. run of new roads and sewers. Plans and detail drawings seen at the offices of the surveyors, Messrs. Hamiltons, 66, Northfield-avenue, Ealing. Specification on deposit of 1*l.* 1s.

JUNE 19.—**Worksop.**—SEWERS.—Supply of cast-iron pipes for new sewers. Particulars from Mr. G. Rawson, Surveyor, Town Hall, Worksop.

JUNE 20. — **Southampton.** — FOOTPATHS.—Tar paving footpaths in the parks. Plan and specification at the Borough Engineer's Office. Deposit of 1*l.* 1s.

✱ JUNE 21.—**Hammersmith.**—CONVENIENCES.—The Hammersmith B.C. invite tenders for a subway and underground sanitary conveniences at the Broadway. See advertisement in this issue for further particulars.

JUNE 23. — **North Walsham.** — GRANITE. — Supply of 600 tons of granite. Samples to Mr. E. J. Simpson, Surveyor to the Council, North Walsham.

JUNE 24.—**Golcar.**—SEWAGE.—Construction of the joint outfall works. Plans, sections, specifications, and general conditions seen, and quantities, on deposit of 5*l.*, from the engineers, Messrs. Abbey & Hanson, C.E., 11, Cloth Hall-street, Huddersfield.

Public Appointments.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*ESTATE AGENT AND VALUER	Swansea Corporation	300*l.* per annum	June
*MANUAL TRAINING INSPECTOR	London C.C.	See advertisement in this issue	June

Auction Sales.

Nature and Place of Sale.	By whom Offered.	Date of Sale.
*ENGINEERING WORKS, PLANT, MACHINERY, STK., ETC., CROYDON—On the Prems.	Henry Sherley-Price	June 13
*BLDR. & CONTR'S PLT., MCHRY., STK., ETC., ALBERT-EMBANK., S.E.—On the Prems.	J. T. Skelding & Holland	June 13
*MELDRETH LIME AND CEMENT WORKS, ROYSTON, HERTS—At the Mart	Valentine & Foster	June 14
*DEALS, BATTENS, BOARDS, TIMBER, ETC.—Great Hall, Winchester House, E.C.	Churchill & Sim	June 14
*FREEHOLD BUILDING SITE, CITY OF LONDON—At the Mart	Rutley, Son, & Vine	June 14
*BUILDER'S MACHINERY—On the Premises	H. Steele & Son	June 14
*PLT., MCHRY., STK., ETC. (IMPERIAL STONE CO., LTD.), GREENWICH, S.E.—On Prem.	Wheatley Kirk, Price, & Co.	June 16
*FREEHOLD BUILDING LAND, CRAWLEY DOWN, SUSSEX—Crown Hotel, E. Grinstead	Knight, Frank, & Rutley	June 28
*FREEHOLD ESTATE, WALTON-ON-THAMES—At the Mart	Debenham, Tewson, Richardson, & Co.	July 4
*FREEHOLD ESTATE, SHORTLANDS, KENT—At the Mart	Baxter, Payne, & Lepper	July 5
*FREEHOLD BUILDING ESTATE, HARPENDEN—At the Mart	Rumball & Edwards	July 10
*FREEHOLD RESIDENCE, HARPENDEN—At the Mart	Rumball & Edwards	July 10
*FREEHOLD BUILDING LAND AND PUBLIC-HOUSE, EDGWARE—At the Mart	Tuckett & Son	July 17

PATENTS.

APPLICATIONS PUBLISHED.*

6,428 of 1910.—John Henry Baker: Coloured gravel concrete paving.

11,541 of 1910.—Frederick William Baines: Waste plug for vats, cisterns, vessels, and the like.

11,637 of 1910.—William Hopkins: Apparatus for use in the construction of concrete structures.

13,787 of 1910.—John Edward Conzelman: Concrete construction.

14,428 of 1910.—John Goodrick: Syphons of flushing tanks.

14,806 of 1910.—Emma Johanna Henriette Plotz: Moulding boxes.

15,796 of 1910.—John Ferguson: Construction of damp-proof and ventilated walls.

15,872 of 1910.—William Chilcott: Slated roofs.

17,241 of 1910.—Percy Richard Julius Willis (L. H. Veronneau): Floor-dressing machines.

17,289 of 1910.—Richard Henry Quine: Lavatories, baths, and sinks.

19,385 of 1910.—George Sheriff Jones: Window or like opening and closing appliances.

19,929 of 1910.—Ernest Harry Cleall and Charles Emmerick Etti: Winch attachment for painters' cradles and the like.

20,393 of 1910.—George Harrison: Holders for sliding window sashes.

25,085 of 1910.—Thomas Kenyon: Apparatus for emptying and testing water pipes and the like.

25,993 of 1910.—Robert Ziegler: Means for glazing roofs and the like.

28,152 of 1910.—Samuel Voss: Process for transporting bricks, and apparatus to be employed therein.

29,575 of 1910.—John Hampson: Holding or clamping device.

256 of 1911.—Gerald Winzer Bennett: Waste valves of baths, lavatory basins, and the like.

495 of 1911.—Fritz Von Emperger: Reinforced concrete pillars.

1,352 of 1911.—John Armstrong Payne: Glazed structures.

5,229 of 1911.—Helliwell & Co., Ltd., and George Edward Ryland: Glazing for roofs and the like.

5,793 of 1911.—Thomas William Nayler, George Nayler, and Arthur Nayler: Grinding mill for mortar and the like.

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom at the prepaid rate of 19s. per annum, with delivery *by Friday Morning's Post* in London and its suburbs.

To Canada, post-free, 21s. 6d. per annum; and to all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, etc., 26s. per annum.

Remittances (payable to J. MORGAN) should be addressed to The Publisher of "THE BUILDER," 4, Catherine-street, W.C.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

May 19.—By ARTHUR COE.

Chagford, Devon.—Southill and 40 a., f.	£2,260
Teigncombe and Little Teigncombe Farms, 110 a., f.	2,400

May 23.—By BERTRAM HUTCHINSON.

Thrapston, Northants.—Thrapston Mill and 3 a. 1 r. 16 p., f.	940
Two villas and pasture land, 7 a. 0 r. 13 p., f.	1,000

By MILLER & ABBOTTS.

Byfield, Northants.—Farm, 56 a. 3 r. 14 p., f.	2,225

By SENIOR & GODWIN.

Gillingham, Dorset.—Great House and 10 a. 0 r. 18 p., f.	1,029
Greenhayes, 12 a. 1 r. 2 p., f.	800
Pasture land, 4 a. 0 r. 12 p., f.	270
Redmoor Farm, 137 a. 0 r. 3 p., f.	5,000
Pasture land, 55 a. 2 r. 18 p., f.	2,375

May 24.—By HUMBERT & FLINT.

Pakenham, Suffolk. — Pakenham Old Hall Farm, 253 a. 3 r. 39 p., f.	£5,400
Highfields and Paltry Farms, 262 a., f.	5,200
Wheelwright's premises and 2 a. 3 r. 29 p., f.	350
Norton, Suffolk.—Two cottages and 2 r. 22 p., f.	100
Off-licensed premises and 35 p., f.	260

By WALLER & KING.

Southampton.—60, Archer's-rd., u.t. 982 yrs., g.r. 5l., p.	495

By HERBERT WRIGHT & WARD.

Ipswich, Suffolk.—13, Warwick-rd., f., w.r. 20l. 16s.	250
Dalton-rd., Sycamore Tower, f., p.	625
30 and 32, Bloomfield-st., f., w.r. 28l. 12s.	375

May 25.—By E. J. GILDERS & Co.

Great Clacton, Essex.—Cann Hall Farm, 156 a. 3 r. 14 p., f.	3,600

By DENYER & COLLINS.

East Grinstead, Sussex.—Oak Farm, cottage and 29 a., f.	2,130
Two cottages and 1 a. 1 r. 2 p., f.	560
Godstone, Surrey. — Rectorial tithe rent charge, 71l. 19s. 6d.	720
Felbridge, Surrey.—Star Inn, f., p.	2,350
Smithy and house, f.	500
Two cottages and 7 a., f.	900
Small holding, 17 a. 3 r. 28 p., f.	400

By WALTON & LEE.

Grindleton, Yorks.—Grindleton and Standen Hey Estates, 1,574 acres, f. and c.	41,675

May 26.—By ROBERT BOWRING.

Evercreech, Somerset.—Pecking Mill Farm, 74 a. 1 r. 12 p., f.	3,600

By DYER, SON, & HILTON.

Greenwich.—62, Tyler-street, u.t. 32 yrs., g.r. 2l. 5s., w r. 27l. 6s.	160
Blackheath.—23 to 29 (odd), Russell-pl., u.t. 21 yrs., g.r. 12l., w.r. 97l. 10s.	355

By RIPPON, BOSWELL, & WHITAKER.

Crediton, Devon.—Northcott Cottage, f.	122
Woodland and Cross Farms, 157 a. 1 r. 30 p., f.	2,115

May 27.—By WOODS & Co.

Farthingstone, Northants. — Enclosures of pasture, 66 a. 3 r. 33 p., f.	1,850

By EVANS & EVANS.

Brocton, Stafford.—Brocton Leys, 2½ a., f.	2,400

May 29.—By HAMPTON & SONS.

Bettws Newydd, Mon.—Brynderwen estate, 279 a., f.	15,700

By NICHOLAS.

Ramsdell, Hants.—Cottage and 7 a., f.	600

By DANIEL SMITH, SON, & OAKLEY.

Hendon.—Elmcroft-av., f.g. rents 49l. 16s., reversion in 99 yrs.	1,195
Finchley-rd., f.g. rents 25l. 4s., reversion in 99 yrs.	605

By BEN ALLSOP.

Ealing.—69, Mount Park-rd., f., p.	1,100
Kensington.—1, Holland-pl., u.t. 730 yrs., g.r. 6l., w.r. 46l. 16s.	300

By F. H. WORLEY.

Woodford.—Peel-rd., house and four plots, f.	580

By HALLETT & BALLARD.

Horley, Surrey.—2, Devon-villas, f.	200

By THORNBORROW & Co.

Bromfield, Cumberland.—Langrigg Bank and 2 r. 16 p., f.	450
Small holding 15½ a., f.	645
Holme Cultram, Cumberland.—East Farm, 137½ a., f.	3,000
Close of meadow land, 8½ a., c.	120
West Farm, 122½ a., f. and c.	1,750

By SENIOR & GODWIN.

Hazelbury Bryan, Dorset. — The Common Farm, 139 a. 0 r. 23 p., f.	3,150

May 30.—By WALTON & LEE.

Mayfair.—47, Curzon-st., f., p.	3,000

By F. WARMAN.

Canonbury.—81, Petherton-rd., u.t. 38½ yrs., g.r. 7l. 7s., p.	255

By WHEELER & WHEELER.

Muswell Hill.—20, Duke's-av., u.t. 90 yrs., g.r. 13l., p.	625

By ERNEST OWERS.

Ealing.—49, St. Kilda-rd., u.t. 92 yrs, g.r. 6l., y.r. 28l.	210

By DEBENHAM, TEWSON, RICHARDSON, & Co.

Kentish Town.—Bartholomew-rd., l.g. rents 40l., u.t. 47 yrs., g.r. nil	600

By THORNBORROW & Co.

Little Strickland, Westmorland.—Strickland Lodge Farm, 41 a. 3 r. 11 p., f.	850
Penrith, Cumberland.—Beacon Hill and 1 a. 3 r., f.	1,410

By LEE & FARR.

Langley, Bucks.—Langley-rd., three bungalows and eight plots, f.	786

By DREWEATT & WATSON.

Newbury, Berks.—House, yard, and workshops, f.	£425
Derby-rd., three cottages, f. and l.	161
East Ilsley, Berks.—Freehold premises	220

By SEDGWICK, SON, & WEALL.

Chipperfield, Herts.—The Dell, two cottages and three plots, f.	404
The Dell, four cottages and enclosure, c.	278
Bushey, Herts.—Enclosure of land, 1 a. 1 r. 4 p., f.	375

By SENIOR & GODWIN.

East Stour, Dorset.—Six cottages and 2 a., f.	312
Gillingham, Dorset.—Four cottages and 1 r. 15 p., f.	310

May 31.—By G. BILLINGS, WRIGHT & Co.

Hackney.—21 and 23, Ursuick-rd., u.t. 54 yrs., g.r. 12l., w.r 85l. 16s.	430
Clapton.—57 and 59, Narford-rd., u.t. 80 yrs., g.r. 10l., y.r. 64l.	490
86, 88, and 90, Northwold-rd., u.t. 80 yrs., g.r. 18l., y.r. 120l.	995
21 Geldeston-rd., u.t. 81 yrs., g.r. 10l., w.r. 84l 10s	205
87 and 89 Alkham rd., u t. 69 yrs., g.r. 12l., y.r. 68l	520
2 and 4 Birdcage-walk, u t. 69 yrs., g.r. 2d., w.r. 72l. 16s.	620

May 31.—By G. BILLINGS, WRIGHT & Co.

Stoke Newington.—18, John Campbell-rd, u.t. 56 yrs., g.r. 6l., y.r. 33l.	235
19, 23 and 27, Manor-rd., u.t. 92 yrs., g.r. 21l. y.r. 136l.	1,185
2 and 4, St. Andrew's-rd., u.t. 67 yrs., g.r. 13l., y.r. 80l.	655
59, Fairholt-rd., u.t. 67 yrs., g.r. 8l., y.r. 46l.	400

By NOKES & NOKES.

Bayswater.— 32, Westmoreland-rd., u.t. 48 yrs. g.r. 10l. w.r. 87l. 2s.	250

June 1.—GIDDY & GIDDY.

Farnham Common, Bucks.—Combe Cottage and ¾ a., f.	1,200

By LEOPOLD FARMER & SONS.

Kilburn.—77 and 79, Kilburn Park-rd., u.t. 67 yrs. g.r. 16l., y.r. 90l.	650
Anerley.—100, Croydon-rd., f., y.r. 50l.	500
Hampstead.—5, St. Georges-rd., u.t. 38 yrs., g.r. 8l. y.r. 45l.	220

By C. C. & T. MOORE.

Mile-end.—176, Hanbury-st., f., w.r. 46l. 16s.	395
12, Bancroft-rd., u.t. 46 yrs., g.r. 4l. 5s., p.	365
65, Cleveland-st., f., y.r. 16l. 8s.	300
Walthamstow.—25 and 26, Gamuel-rd., f., w.r. 35l. 2s.	220

By NEWBON & SHEPHARDS.

Stoke Newington.—128, Rectory-rd., u.t. 60 yrs., g.r. 8l., p.	300
Holloway.—371, Camden-rd., u.t. 21¼ yrs., g.r. 9l., y.r. 50l.	220
206, 208, and 214, Liverpool-rd., u.t. 5 yrs., g.r. 27l., y.r. 126l.	145

By SALTER, REX, & Co.

Bowes Park.—49, Maidstone-rd., u.t. 89 yrs., g.r. 8l. 10s., p.	310

By STIMSON & SONS.

Battersea.—6 and 8, Kambala-rd., u.t. 69¼ yrs., g.r. 11l., w.r. 75l. 8s.	330
Clapham.—15, Hemberton-rd., u.t. 71 yrs., g.r. 7l., p.	250
Pimlico.—14, Sutherland-st., u.t. 22 yrs., g.r. 10l., p.	200
Bermondsey.—10 to 18, Janeway-st., u.t. 17 yrs., g.r. 35l., w.r. 144l. 6s.	150
6, 8, and 20, Janeway-st., f., w.r. 77l. 7s.	525
Stratford.—1, 3, and 5, Broad-st., f., w.r. 75l. 8s.	350
Holloway.—1, 3, and 5, Brand-st., f., w.r. 78l.	450
Highgate.—44 and 46, Girdlestone-rd., f., w.r. 59l. 16s.	385
Peckham.—94, Clifton-cres., u.t. 70 yrs., g.r. 5l., w.r. 42l. 18s.	240
Caledonian-rd.—No. 413 (s.), u.t. 36 yrs., g.r. 7l., y.r. 52l.	200
Bethnal Green.—5, 7, and 9, Three Colts-la., u.t. 7 yrs., g.r. 10l., w.r. 105l. 4s.	120

By ROBT. NEWMAN.

Cowley, Middx.—Meadow land, 1 a. 3 r. 1 p. f.	570
Fruit land, 2 r. 11 p., f.	150
Cowley Field, 9 a., f.	2,350
Orcharding, 3 a. 3 r. 14 p., f.	950

***Contractions used in these lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beerhouse; p.h. for public-house; o. for offices; s. for shops; ct. for court.**

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

Per 1000 Alongside, in River.	£	s.	d.
Best Stocks	1	13	0
Picked Stocks for Facings	2	10	0

Per 1000, Delivered at Railway Depôt.

	£	s.	d.		£	s.	d.
Flettons	1	9	0	Double Headers	13	7	6
Best Fareham Red	3	12	0	One Side and two Ends	17	7	6
Best Red Pressed Ruabon Facing	5	0	0	Two Sides and one End	18	7	6
Best Blue Pressed Staffordshire	3	15	0	Splays & Squints	15	17	6
Do. Bullnose	4	0	0	Best Dipped Salt Glzd. Str'tch'rs	10	17	6
Best Stourbridge Fire Bricks	3	14	0	Headers	10	7	6
GLAZED BRICKS.				Quoins, Bullnose, and Flats	14	7	6
Best White and Ivory Glazed Stretchers	10	17	6	D'ble Stretchers	16	7	6
Headers	10	7	6	Double Headers	13	7	6
Quoins, Bullnose, and Flats	14	7	6	One Side and two Ends	17	7	6
D'ble Stretchers	16	7	6	Two Sides and one End	18	7	6
Second Quality White and Dipped Salt Glazed, £1 5s. per 1000 less than best.				Splays & Squints	15	17	6

	s.	d.	
Thames and Pit Sand	6	9	per yard, delivered
Thames Ballast	5	3	" "
Best Portland Cement	29	0	per ton, "
Best Ground Blue Lias Lime	19	0	" "

NOTE—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 11s. 6d. per yard delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly dpt.

STONE.

Per Ft. Cube.

	s.	d.
BATH STONE—delivered on road waggons, Paddington Depôt	1	6½
Do. do. delivered on road waggons, Nine Elms Depôt	1	8½
PORTLAND STONE (20 ft. average)—		
Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2	1
White Basebed, delivered on road waggons Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2	2½

Per Ft. Cube, delivered at Railway Depôt.

	s.	d.		s.	d.
Ancaster in blocks	1	10	Closeburn Red	2	0
Beer in blocks	1	6	Freestone	2	0
Greenshill in blocks	1	10	Red Mansfield Freestone	2	4
Darley Dale in blocks	2	4	Talacre & Gwespyr Stone	2	8
Red Corsehill in blocks	2	3			

YORK STONE—*Robin Hood Quality.*

Per Ft. Cube, Delivered at Railway Depôt.	s.	d.
Scappled random blocks	2	10

Per Ft. Super., Delivered at Railway Depôt.

6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	3
6 in. rubbed two sides ditto, ditto	2	6
3 in. sawn two sides slabs (random sizes)	0	11½
2 in. to 2½ in. sawn one side slabs (random sizes)	0	7½
1½ in. to 2 in. ditto, ditto	0	6

HARD YORK—

Per Ft. Cube, Delivered at Railway Depôt.		
Scappled random blocks	3	0

Per Ft. Super., Delivered at Railway Depôt.

6 in. sawn two sides landing to sizes (under 40 ft. super.)	2	8
6 in. rubbed two sides ditto	3	0
3 in. sawn two sides slabs (random sizes)	1	2
2 in. self-faced random flags	0	5

SLATES.

Per 1000 of 1200 at Railway Depôt.

In. In.	£	s.	d.	In. In.	£	s.	d.
20×10 best blue Bangor	13	2	6	20×10 best Eur'ka unfading green	15	17	6
20×12 ditto	13	17	6	20×12 ditto	18	7	6
20×10 1st quality ditto	13	0	0	18×10 ditto	13	5	0
20×12 ditto	13	15	0	16×8 ditto	10	5	0
16×8 ditto	7	5	0	20×10 permanent green	11	12	6
22×10 best blue Portmadoc	12	12	6	18×10 ditto	9	12	6
16×8 ditto	6	12	6	16×8 ditto	6	12	6

TILES.

At Railway Depôt.

	s.	d.		s.	d.
Best plain red roofing (per 1000)	42	0	Do. Ornamental (per 1000)	52	6
Hip and Valley (per doz.)	3	7	Hip and Valley (per doz.)	4	0
Best Broseley (per 1000)	50	0	Best Ruabon red, brown, or brindled (Edw'ds) (per 1000)	57	6
Do. Ornamental (per 1000)	60	0	Do. Ornamental (per 1000)	50	0
Hip (per doz.)	4	0	Hip (per doz.)	4	0
Valley (per doz.)	3	0	Valley (per doz.)	3	6
Best "Hartshill" brand, plain sand-faced (per 1000)	50	0	Staffords. (Hanley) Reds or Brindled (per 1000)	42	6
Do. pressed (per 1000)	47	6	Hand-made sand-faced (per 1000)	45	0
			Hip (per doz.)	4	0
			Valley (per doz.)	3	6

WOOD.

BUILDING WOOD.	At per standard. £	s.	d.		£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	14	0	0	...	15	10	0
Deals: best 3 by 9	13	10	0	...	14	10	0

WOOD (*Continued*).

BUILDING WOOD (*Continued*).	£	s.	d.		£	s.	d.
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11	10	0	...	12	10	0
Battens: best 2½ by 6 and 3 by 6	0	10	0	...	less than 7 in. and 8 in.		
Deals: seconds	1	0	0	less thn best.			
Battens: seconds	0	10	0	"	"		
2 in. by in. and 2 in. by 6 in.	9	10	0	...	10	10	0
2 in. by 4½ in. and 2 in. by 5 in.	9	0	0	...	10	0	0
Foreign Sawn Boards—							
1 in. and 1¼ in. by 7 in.	0	10	0	more than battens.			
¾ in.	1	0	0	"			
Fir timber: best middling Danzig or Memel (average specification)	At per load of 50 ft. 5	0	0	...	5	10	0
Seconds	4	10	0	...	5	0	0
Small timber (8 in. to 10 in.)	3	17	6	...	4	0	0
Small timber (6 in. to 8 in.)	3	5	0	...	3	10	0
Swedish balks	2	12	6	...	3	0	0
Pitch-pine timber (30 ft. average)	4	10	0	...	5	5	0
JOINERS' WOOD.	At per standard.						
White Sea: first yellow deals, 3 in. by 11 in.	24	10	0	...	25	10	0
3 in. by 9 in.	22	10	0	...	23	10	0
Battens, 2½ in. and 3 in. by 7 in.	17	0	0	...	18	0	0
Second yellow deals, 3in. by 11in.	19	0	0	...	20	0	0
" " 3 in. by 9 in.	18	0	0	...	19	10	0
Battens, 2½ in. and 3 in. by 7 in.	14	0	0	...	15	0	0
Third yellow deals, 3 in. by 11 in. and 9 in.	14	0	0	...	15	0	0
Battens, 2½ in. and 3 in. by 7 in.	11	10	0	...	12	10	0
Petersburg: first yellow deals, 3 in. by 11 in.	21	10	0	...	22	10	0
Do. 3 in. by 9 in.	18	10	0	...	19	10	0
Battens	14	0	0	...	15	0	0
Second yellow deals, 3 in. by 11 in	16	10	0	...	17	10	0
Do. 3 in. by 9 in.	15	0	0	...	16	0	0
Battens	11	10	0	...	12	10	0
Third yellow deals, 3in. by 11 in.	13	10	0	...	14	10	0
Do. 3 in. by 9 in.	13	0	0	...	14	0	0
Battens	10	10	0	...	11	0	0
White Sea and Petersburg—							
First white deals, 3 in. by 11 in.	15	0	0	...	16	0	0
" " 3 in. by 9 in.	14	0	0	...	14	10	0
Battens	11	10	0	...	12	10	0
Second white deals, 3in. by 11in.	14	0	0	...	15	0	0
" " 3 in. by 9 in.	13	0	0	...	14	0	0
Battens	10	10	0	...	11	0	0
Pitch-pine: deals	19	0	0	...	21	0	0
Under 2 in. thick extra	0	10	0	...	1	0	0
Yellow Pine—First, regular sizes	44	0	0	upwards.			
Oddments	32	0	0	"			
Seconds, regular sizes	33	0	0	"			
Oddments	28	0	0	"			
Kauri Pine—Planks per ft. cube.	0	3	6	...	0	5	0
Danzig and Stettin Oak Logs—							
Large, per ft. cube	0	3	0	...	0	3	9
Small " "	0	2	6	...	0	2	6
Wainscot Oak Logs, per ft. cube	0	5	6	...	0	6	0
Dry Wainscot Oak, per ft. sup. as inch	0	0	8½	...	0	0	9½
¾ in. do. do.	0	0	7	...	—		
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch	0	0	10	...	0	1	1
Selected, Figury, per ft. super. as inch	0	1	6	...	0	2	6
Dry Walnut, American, per ft. super. as inch	0	0	10	...	0	1	0
Teak, per load	18	0	0	...	22	0	0
American Whitewood planks, per ft. cube	0	4	0	...	0	5	0
Prepared Flooring, etc.—	Per square.						
1 in. by 7 in. yellow, planed and shot	0	13	6	...	0	17	0
1 in. by 7 in. yellow, planed and matched	0	14	0	...	0	18	0
1¼ in. by 7 in. yellow, planed and matched	0	16	0	...	1	0	0
1 in. by 7 in. white, planed and shot	0	12	0	...	0	14	6
1 in. by 7 in. white, planed and matched	0	12	6	...	0	15	0
1¼ in. by 7 in. white, planed and matched	0	15	0	...	0	16	6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0	11	0	...	0	13	6
1 in. by 7 in. " "	0	14	0	...	0	18	6
¾ in. by 7 in. white " "	0	10	0	...	0	11	0
1 in. by 7 in. " "	0	12	9	...	0	15	0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £	s.	d.		£	s.	d.
Rolled Steel Joists, ordinary sections	7	0	0	...	7	10	0
Compound Girders, ordinary sections	9	0	0	...	10	0	0
Steel Compound Stanchions	11	0	0	...	12	0	0
Angles, Tees, and Channels, ordinary sections	9	0	0	...	10	0	0
Flitch Plates	9	0	0	...	9	10	0
Cast Iron Columns & Stanchions, including ordinary patterns	7	10	0	...	8	10	0

METALS.

IRON—	Per ton, in London. £	s.	d.		£	s.	d.
Common Bars	8	10	0	...	9	0	0
Staffordshire Crown Bars, good merchant quality	8	15	0	...	9	5	0
Staffordshire "Marked Bars"	10	10	0	...	—		
Mild Steel Bars	8	15	0	...	9	5	0
Hoop Iron, basis price	9	5	0	...	9	10	0
" " Galvanised	17	0	0	...	—		
(*And upwards, according to size and gauge.)							
Sheet Iron Black—							
Ordinary sizes to 20 g.	9	15	0	...	—		
" " 24 g.	10	15	0	...	—		
" " 26 g.	12	5	0	...	—		
Sheet Iron, Galvanised, flat, ordinary quality—							
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	15	0	0	...	—		
Ordinary sizes to 22 g. and 24 g.	15	10	0	...	—		
" " 26 g.	16	10	0	...	—		
Sheet Iron, Galvanised, flat, best quality—							
Ordinary sizes to 20 g.	18	0	0	...	—		
" " 22 g. and 24 g.	18	10	0	...	—		
" " 26 g.	20	0	0	...	—		

METALS (*Continued*).

IRON (*Continued*)—	Per ton, in London. £	s.	d.		£	s.	d.
Galvanised Corrugated Sheets—							
Ordinary sizes, 6ft. to 8ft. 20 g.	14	10	0	...	—		
" " 22 g. and 24 g.	14	15	0	...	—		
" " 26 g.	16	5	0	...	—		
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	12	0	0	...	—		
Best Soft Steel Sheets, 2 g. & 24 g.	13	0	0	...	—		
" " " 26 g.	15	0	0	...	—		
Cut Nails, 3 in. to 6 in.	10	10	0	...	11	0	0
(Under 3 in., usual trade extras.)							

LEAD, &c.

	£	s.	d.		£	s.	d.
LEAD—Sheet, English, 4lb. and up	16	10	0	...	—		
Pipe in coils	17	0	0	...	—		
Soil pipe	20	0	0	...	—		
Compo pipe	20	0	0	...	—		
ZINC—Sheet—	In casks of 10 cwt.						
Vielle Montagne	31	0	0	...	—		
Silesian	30	12	6	...	—		
Zinc, in bundles, 1s. per cwt. extra.							
COPPER—							
Strong Sheet per lb.	0	1	0	...	—		
Thin "	0	1	1	...	—		
Copper nails "	0	0	10	...	—		
Copper wire "	0	0	10	...	—		
BRASS—							
Strong Sheet "	0	0	11	...	—		
Thin "	0	1	0	...	—		
TIN—English Ingots "	0	2	0	...	—		
SOLDER—Plumbers' "	0	0	8½	...	—		
Tinmen's "	0	0	11	...	—		
Blowpipe "	0	1	2	..	—		

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.*

Per Ft., Delivered.

15 oz. thirds	2½d.	26 oz. fourths	3½d.
" fourths	1½d.	32 oz. thirds	5½d.
21 oz. thirds	3½d.	" fourths	4½d.
" fourths	2½d.	Fluted Sheet, 15 oz.	3½d.
23 oz. thirds	4½d.	" 21 oz.	4½d.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.*

Per Ft., Delivered.

⅛ Hartley's	2d.	Figured Rolled, Oxford Rolled, Oceanic, Arctic, Muffled, and Rolled Cathedral, white 3½d.
7/32 "	2½d.	Ditto, tinted 5d.
¼ "	2½d.	

* Not less than three crates.

OILS, &c.

		£	s.	d.
Raw Linseed Oil in pipes	per gallon	0	3	8
" " " in barrels	"	0	3	9
" " " in drums	"	0	3	11
Boiled " " in barrels	"	0	3	11
" " " in drums	"	0	4	2
Turpentine in barrels	"	0	4	0
" in drums	"	0	4	2
Genuine Ground English White Lead, per ton		21	10	0
Red Lead, Dry	"	20	0	0
Best Linseed Oil Putty	per cwt.	0	11	0
Stockholm Tar	per barrel	1	12	0

VARNISHES, &c.

	Per gallon. £	s.	d.
Fine Pale Oak Varnish	0	8	0
Pale Copal Oak	0	10	6
Superfine Pale Elastic Oak	0	12	6
Fine Extra Hard Church Oak	0	10	0
Superfine Hard-drying Oak, for seats of Churches	0	14	6
Fine Elastic Carriage	0	12	0
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	10	0
Finest Pale Durable Copal	0	18	0
Extra Pale French Oil	1	1	0
Eggshell Flating Varnish	0	18	0
White Pale Enamel	1	4	0
Extra Pale Paper	0	12	0
Best Japan Gold Size	0	10	6
Best Black Japan	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	8	0
Berlin Black	0	16	0
Knotting	0	10	9
French and Brush Polish	0	10	6

TO CORRESPONDENTS.

NOTE.—All communications with respect to literary and artistic matters should be addressed to "THE EDITOR" (and not to any person by name); those relating to advertisements and other exclusively business matters should be addressed to "THE PUBLISHER," and *not* to the Editor.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

All drawings sent to or left at this office for consideration should bear the owner's name and address on either the face or back of the drawing. Delay and inconvenience may result from inattention to this.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

N.B.—Illustrations of the First Premiated Design in any important architectural competition will always be accepted for publication by the Editor, whether they have been formally asked for or not.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursday.* [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.* unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

BALLYMENA.—For rebuilding premises in Wellington-street, for Messrs. R. Allan & Son. Messrs. Patterson & Grahame, architects, 48, Church-street, Ballymena:—

J. Hogg & Sons	£4,394 0 0	McIntyre Bros.	£2,400 0 0
Gault Bros., Ltd.	2,684 17 4	A. O'Hara	2,110 0 0
W. Dowling	2,410 0 0	J. Carson, Ballymena*	2,055 0 0

BLACKWOOD, MON.—For erection of seventeen houses. Mr. D. J. Thomas, architect, High-street, Blackwood, Mon.:—

	Each.		Each.
H. J. Herbert & Co.	£320	J. E. Jones	£275
W. & J Jenkins	295	G. F. Leadbeter	265
Passmore & Perkins	285	S. Edwards, Newbridge, Mon.*	247
W. & D. Thomas	280		

BLAINA.—For erection of a manager's house, for Messrs. J. & W. Stone. Mr. A. F. Webb, architect, Blackwood, Mon.:—

Gay & Head	£875	Gregory Bros. & Pember, Pontnewynydd*	£645
J. E. Jones	685		
J. Morgan	673		

CANTERBURY.—For extending cottage homes. Mr. F. H. Doré, architect, 25, Watling-street, Canterbury:—

L. T. Dadds	£1,725 0 0	E. J. Bowles	£1,632 0 0
C. Mount	1,699 0 0	L. Seager	1,629 0 0
G. Martin	1,695 11 0	Harris Bros.	1,624 0 0
Clarke & Epps	1,695 0 0	J. W. Edwards	1,602 5 6
F. T. Gentry	1,690 0 0	G. Lewis & Son, Dover*	1,526 0 0
G. Browning	1,639 0 0		

ELGIN.—For erection of conveniences:—

Mason Work.

J. Young	£158 0 0	Davidson & Hay	£139 0 0
W. Fraser	153 2 3	E. Hay	129 10 0
A. McKerron	149 16 0	W. Jamieson*	129 0 0
G. Garrow	139 13 0	J. Newlands	126 3 0

Carpenter Work.

J. Sellar	£63 15 8
Mackie & Mckenzie	41 17 0
J. Johnston*	38 10 0

Plumber Work.

J. A. Russell	£69 18 0	J. Gordon & Son	£64 10 0
W. Lyon & Son	68 0 0	J. Ross*	61 11 6
J. Hunter Clark	64 17 0		

Slater Work.

G. Bain*	£2 19 0	A. Davidson & Son	£2 14 0

Plaster Work.

J. Brodie & Son*	£17 6

Painter Work.

W. Asher	£4 7 0	J. Kintrea & Son*	£3 5 6

Smith Work.

Youngson Bros.	£17 6 0	W. Law & Co.*	£15 18 3

HEREFORD.—For the erection of a vicarage house at Orcop, for the Rev. W. S. Isherwood. Mr. Ernest G. Davies, architect, Hereford:—

C. Cooke	£1,192	W. C. Bolt	£933
J. J. Walby	1,120	D. W. Pugh	900
G. Court	950	W. & R. Virgo, Pontrilas*	876

HEREFORD.—For the erection of a new house at Belmont, for Mrs. Hagreen. Mr. Ernest G. Davies, architect, Hereford:—

R. Taylor	£505 0	J. Williams	£445 0
T. Hiles	496 0	W. Preece, Hereford*	424 10
W. C. Bolt	460 0		

HEREFORD.—For the erection of a cottage at St. Weonards, for Mr. E. W. Howell. Mr. Ernest G. Davies, architect, Hereford and Monmouth:—

J. Edwards & Son	£250 0	W. Rowberry	£197 10
T. & F. Moore	249 16	J. Price	195 0
W. H. Peake	245 0	T. Hiles	173 17
E. W. Wilks & Son	225 0	W. Preece, Hereford*	165 10

HEREFORD.—For alterations and additions to cottage at St. Weonards, for Mr. E. W. Howell. Mr. Ernest G. Davies, architect, Hereford:—

W. Preece	£149
G. Court, Lyston, near Hereford*	121

HORRABRIDGE.—For semi-detached villa, Horrabridge, for Mr. J. J. Nosworthy. Mr. E. W. Lister, architect, Clock Tower Chambers, Plymouth:—

A. Andrews	£695 0 0	R. C. Williams	£598 18 1
Petherick & May	689 11 5	J. Paynter	580 0 0
Wakeham Bros.	668 0 0	Hockin & Son, Horrabridge*	541 0 0
Nankivell	663 0 0		
Howard	640 0 0		

HORRABRIDGE STATION. — For erection of semi-detached villa, for Mr. W. A. Westlake. Mr. E. W. Lister, architect, Clock Tower Chambers, Plymouth:—

A. Andrews	£630 0 0	J. Paynter	£560 0 0
Nankivell	612 0 0	Williams	531 9 6
Wakeham Bros.	595 0 0	Hockin & Son, Horrabridge*	450 0 0
Petherick & May	585 15 10		
Howard	580 0 0		

KELVEDON.—For the erection of an institute at Kelvedon. Mr. J. W. Start, F.S.I., architect, Colchester:—

Lewis & Sons	£1,886	C. Deaves	£1,176
Wells & Co.	1,284	R. Beaumont	1,169
E. Saunders	1,215	W. Chambers	1,137
W. C. Theobald	1,195	J. W. Trudgett	1,050
J. Smith & Son	1,193	Spalding, Sons, & Co., Norwich*	1,050
Johnson & Hawkes	1,189		
A. H. Fryd	1,177		

LEEK.—For concrete work at generating station. Mr. W. E. Beacham, Engineer, Town Hall, Leek. Quantities by the Engineer:—

J. Heath & Son	£294 19 9	Sanders & Torrance	£237 7 10
F. Mitchell & Son	278 16 0	S. Salt	234 0 0
T. Grace, Leek*	262 5 0		

[Surveyor's estimate, £280.]

SOUTH MOLTON.—For construction of a culvert. Mr. W. S. Gardner, Council Surveyor, Rack Mead Cottage, Chittlehampton:—

S. Ellis & Sons	£167 10
W. Sanders & Son, South Molton*	166 0

TOTNES.—For additions to the Seymour Hotel. Mr. W. F. Tollit, architect, 10, High-street, Totnes, Devon:—

T. Brook	£399	W. Reeves & Son*	£393

WARRENPOINT.—For erection of a hall, for the Irish National Foresters. Mr. P. J. Neary, architect, River-street, Newry:—

D. Neary & Sons	£310 0	J. Wilson & Son, Warrenpoint*	£278 0
G. Butler	305 10		
P. Carvill	290 0		

Ham Hill Stone.
Doulting Stone.
Portland Stone.
The Ham Hill and Doulting Stone Co., Limited
(incorporating the Ham Hill Stone Co. and C. Trask & Son, The Doulting Stone Co.).
Norton, Stoke-under-Ham, Somerset.
London Agent:—Mr. E. A. Williams, 16, Craven-street, Strand.

USE
WHITE
LIME-SAND BRICKS
Of the Finest Quality
FOR
BUILDINGS, TUNNELS, CELLARS, MANHOLES, etc.
WHY?
B The Bricks are uniform.
E Less mortar is required.
C Closer joints can be made.
A 15 per cent. more bricks can be laid per day.
U Where light is required they need no whitewashing.
S Saving of material and labour.
E Used by the Million in Germany, America, and in this Country.
These Bricks are made by the
GODSTONE BRICK & TILE CO., LTD.,
Oxted Road, Godstone, Surrey,
and can be delivered in quantities of not less than 5,000 within 10 miles of the Company's Works at 26/- per 1,000, net.
Send for Free Samples.

Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 42, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. Asphalte Contractors to the Forth Bridge Co.

SPRAGUE & CO., Ltd.,
PHOTOLITHOGRAPHERS,
4 & 5, East Harding-street,
Fetter-lane, E.C.

OGILVIE & CO., Telephone: DALSTON 1388
Many years connected with the late firm of W. H. LASCELLES & Co., LTD., of Bunhill Row.
Amhurst Works, DALSTON LANE, N.E.
EXPERTS IN HIGH-CLASS JOINERY.
ALTERATIONS AND DECORATIONS. ESTIMATES FREE.

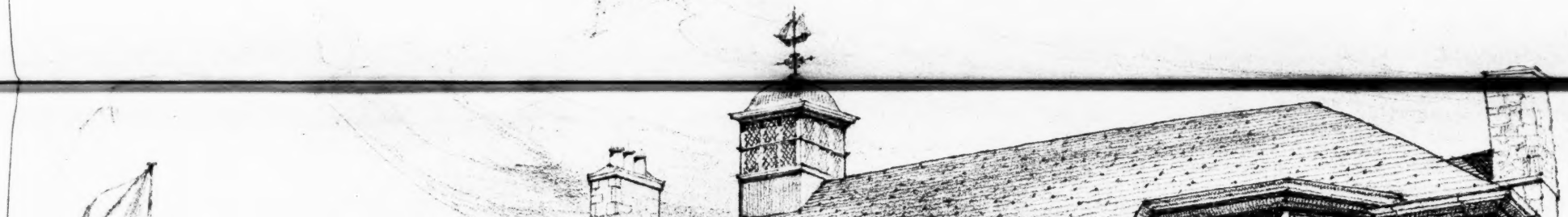
J. J. ETRIDGE, Jr.
SLATE MERCHANTS. LTD.,
EXPERTS IN
SLATING, TILING.
BEST WORK ONLY.
Telephone 2685 Wall, or write
BETHNAL GREEN SLATE WORKS
BETHNAL GREEN, LONDON, E.

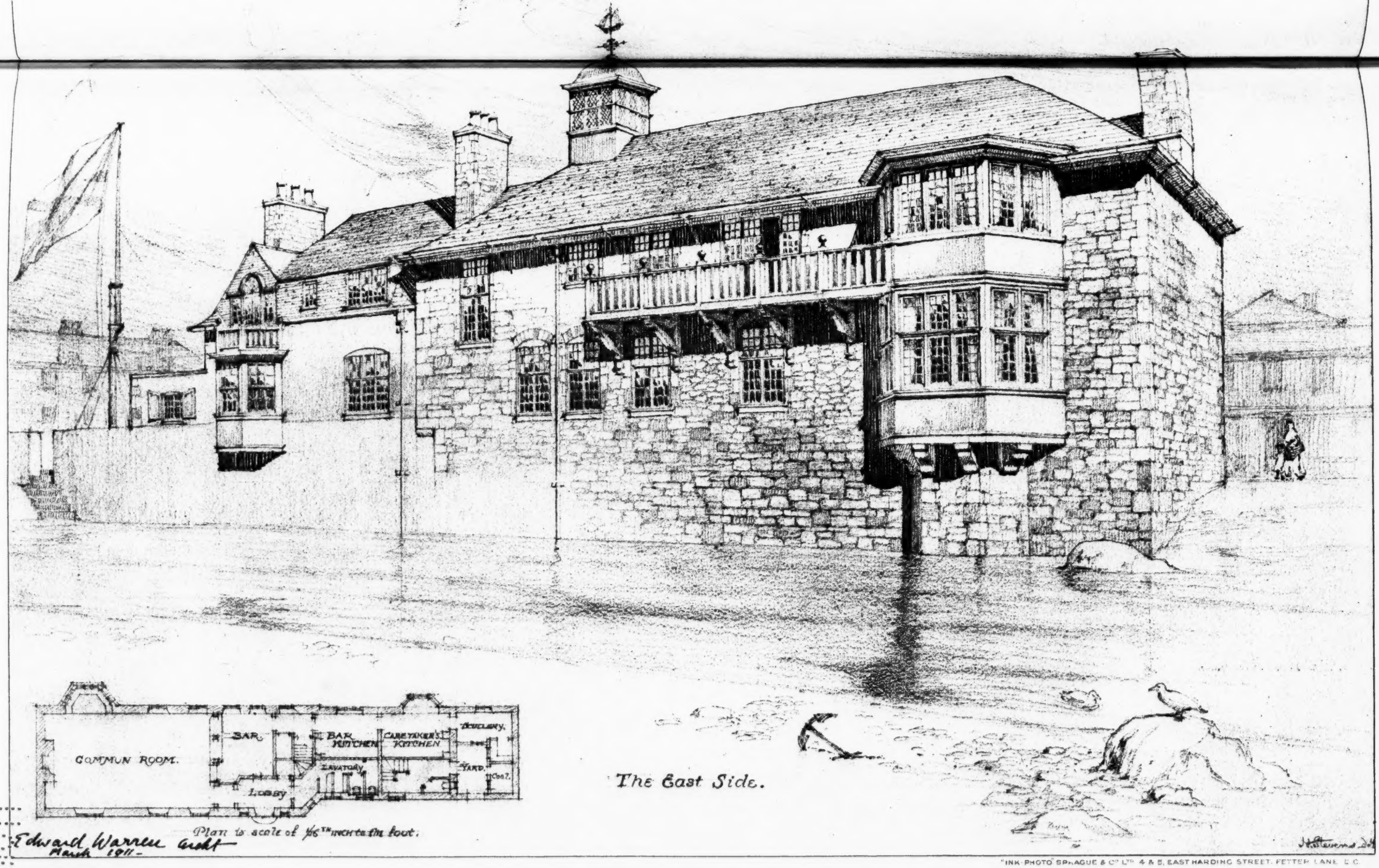
ASPHALTE
For Horizontal & Vertical Damp Courses.
For Flat Roofs, Basements, & other Floors.
The best materials and workmanship are supplied by
THE
French Asphalte Co.
Whose name and address should be inserted in all specifications.
For estimates, quotations, and all information apply at the Offices of the Company,
5, LAURENCE POUNTNEY HILL,
CANNON STREET, E.C.

EWART'S
Cures in 19 cases out of 20.
"EMPRESS"
Write to-day for Illustrated Catalogue Free to
EWART & SON Ltd.,
346-350, Euston Road, London, N.W.
Established 1834.
Telephone: 2570 North.
SMOKE-CURE

DEEP SEA FISHERMENS' INSTITVTE
NEWLYN CORNWALL

The West FRONT.



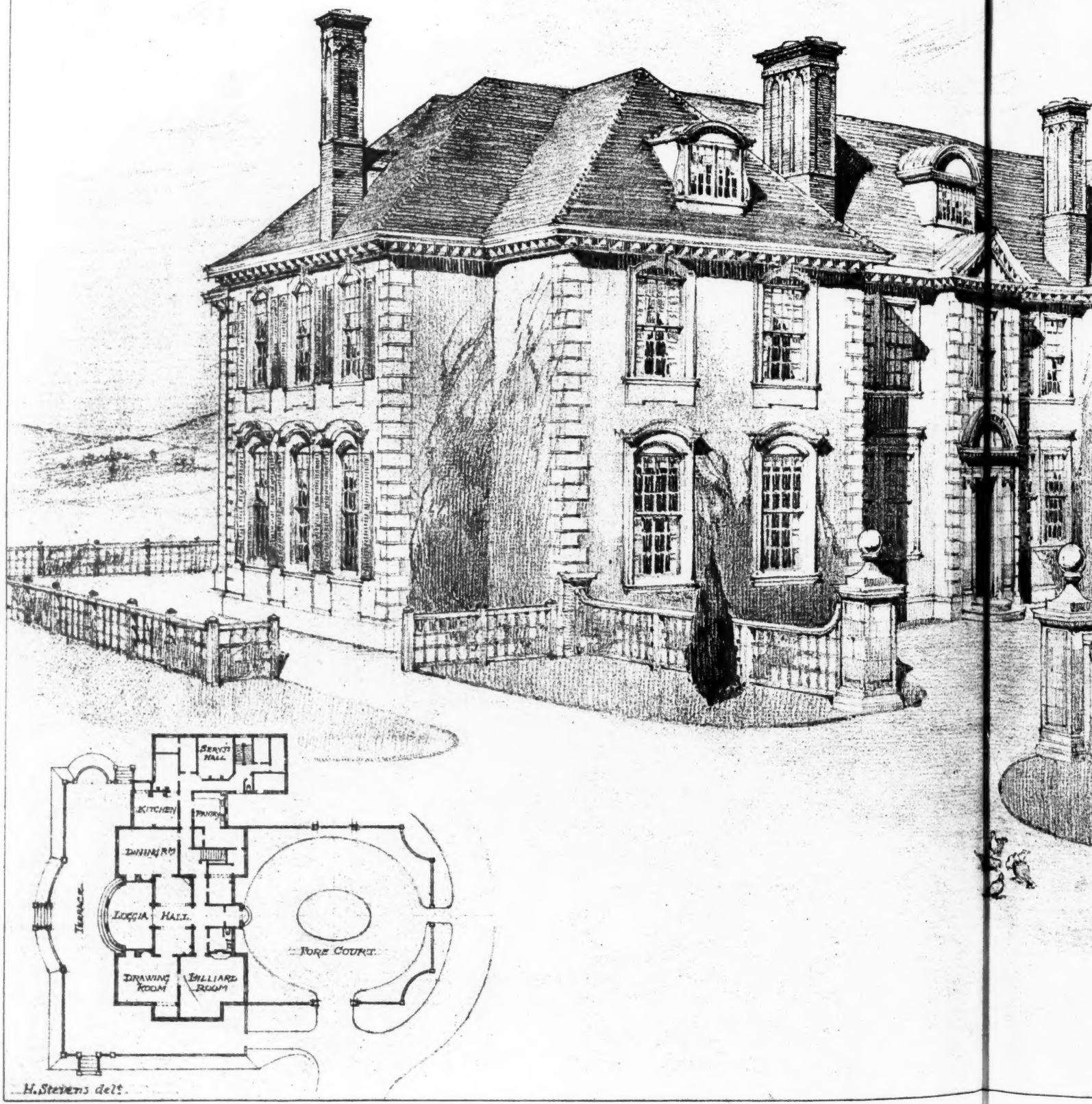


"INK-PHOTO" SPRAGUE & Co LTD 4 & 5, EASTHARDING STREET, FETTER LANE, E.C.

DEEP SEA FISHERMEN'S INSTITUTE, NEWLYN, CORNWALL.—Mr. Edward P. Warren, F R I B A., Architect

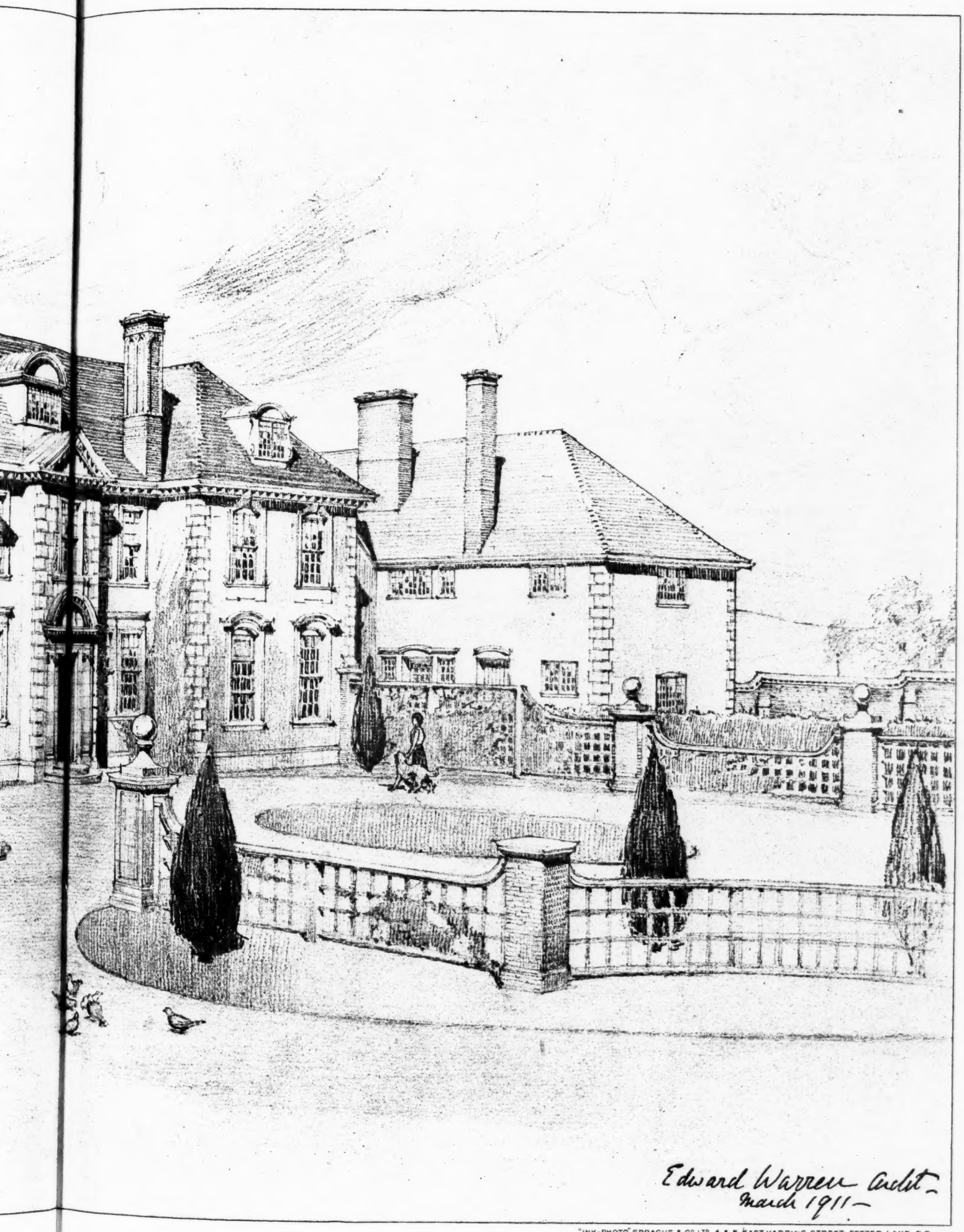
Royal Academy Exhibition, 1911.

GORSE HILL NR WOKING



GORSE HILL, NEAR WOKING.—MR EDWARD P. WARREN

Royal Academy Exhibition, 1911

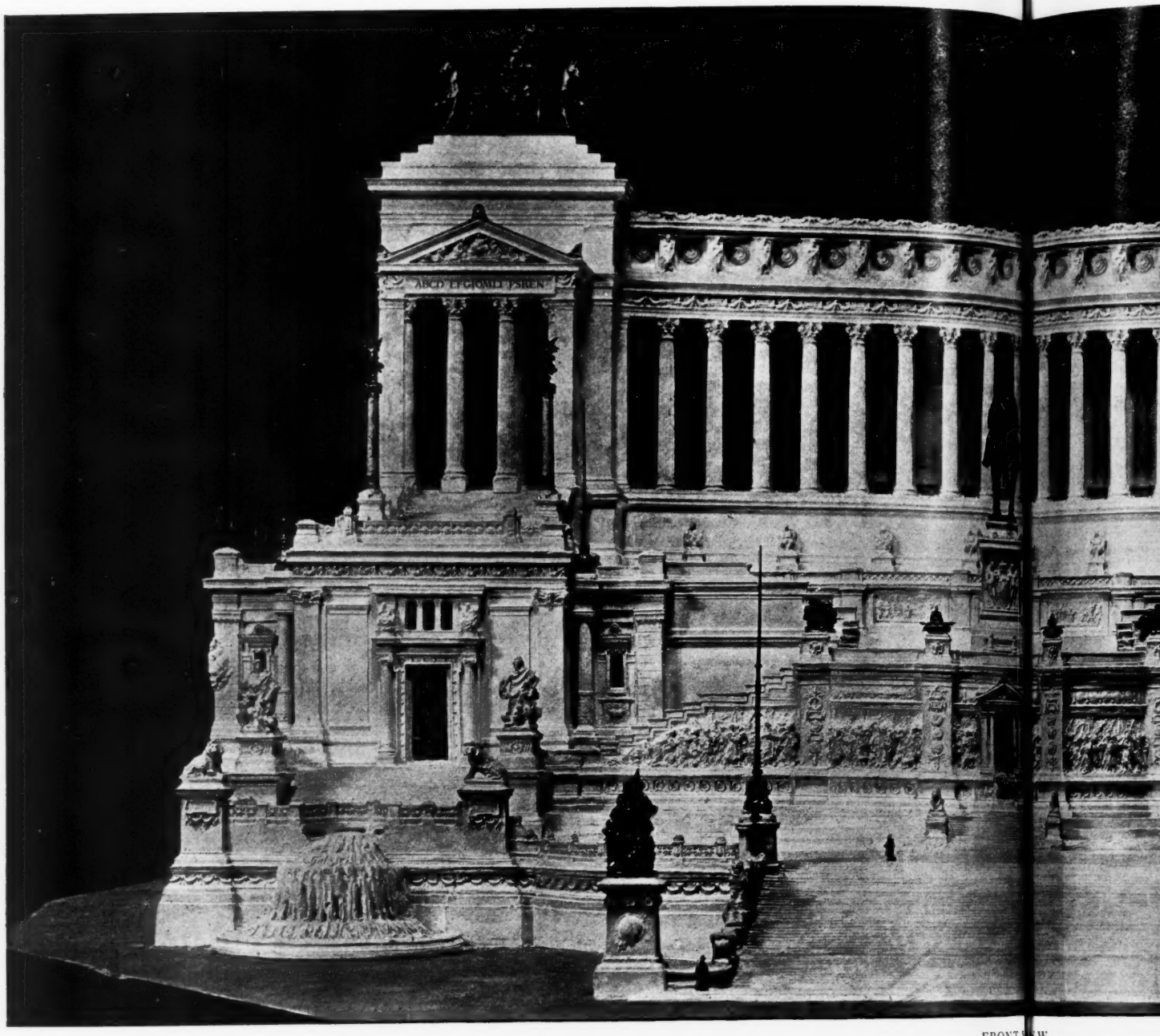


Edward Warren Archt.
March 1911.

"INK-PHOTO" SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

ENG.—MR EDWARD P. WARREN, F.R.I.B.A., ARCHITECT.

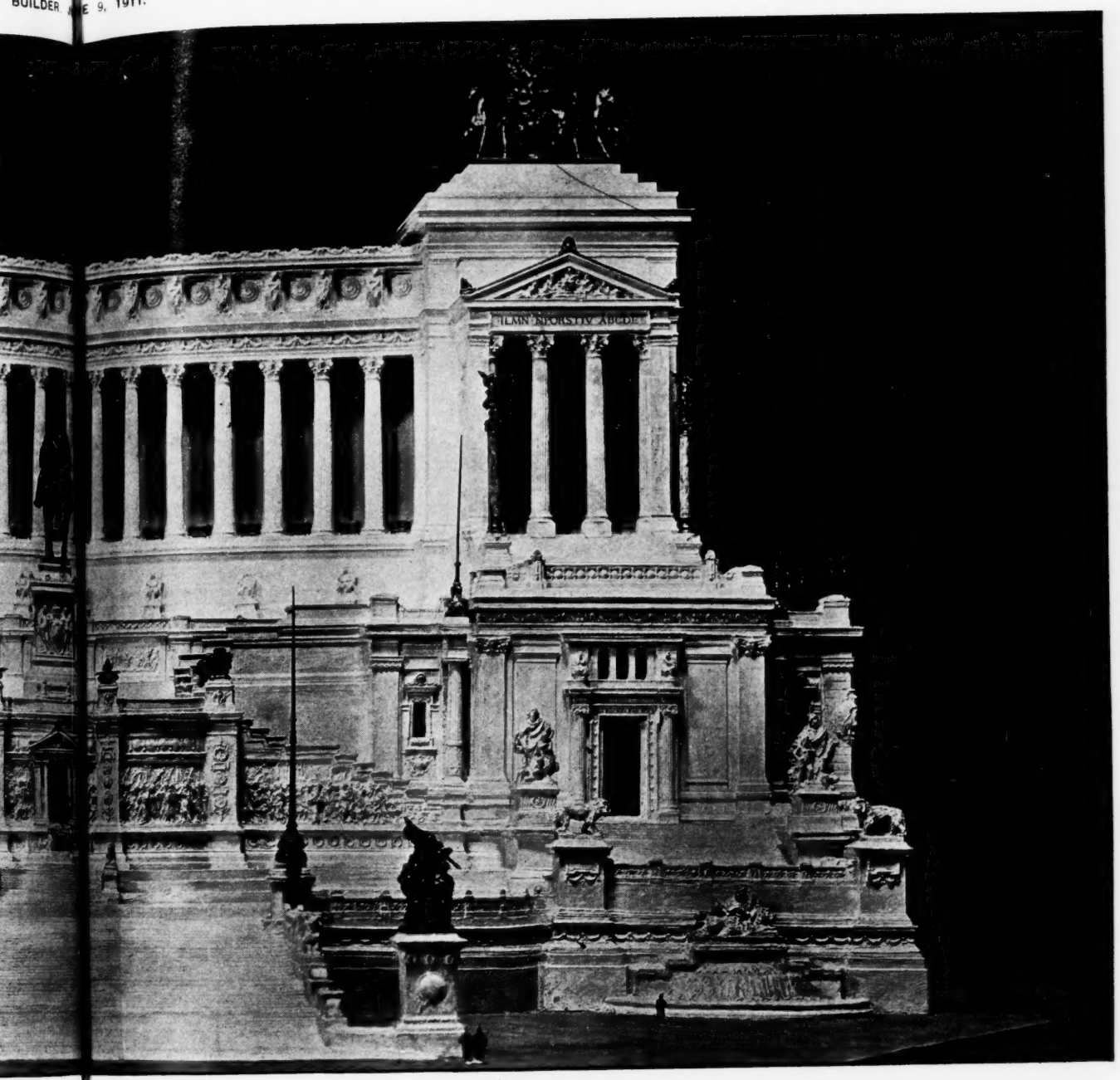
UofM



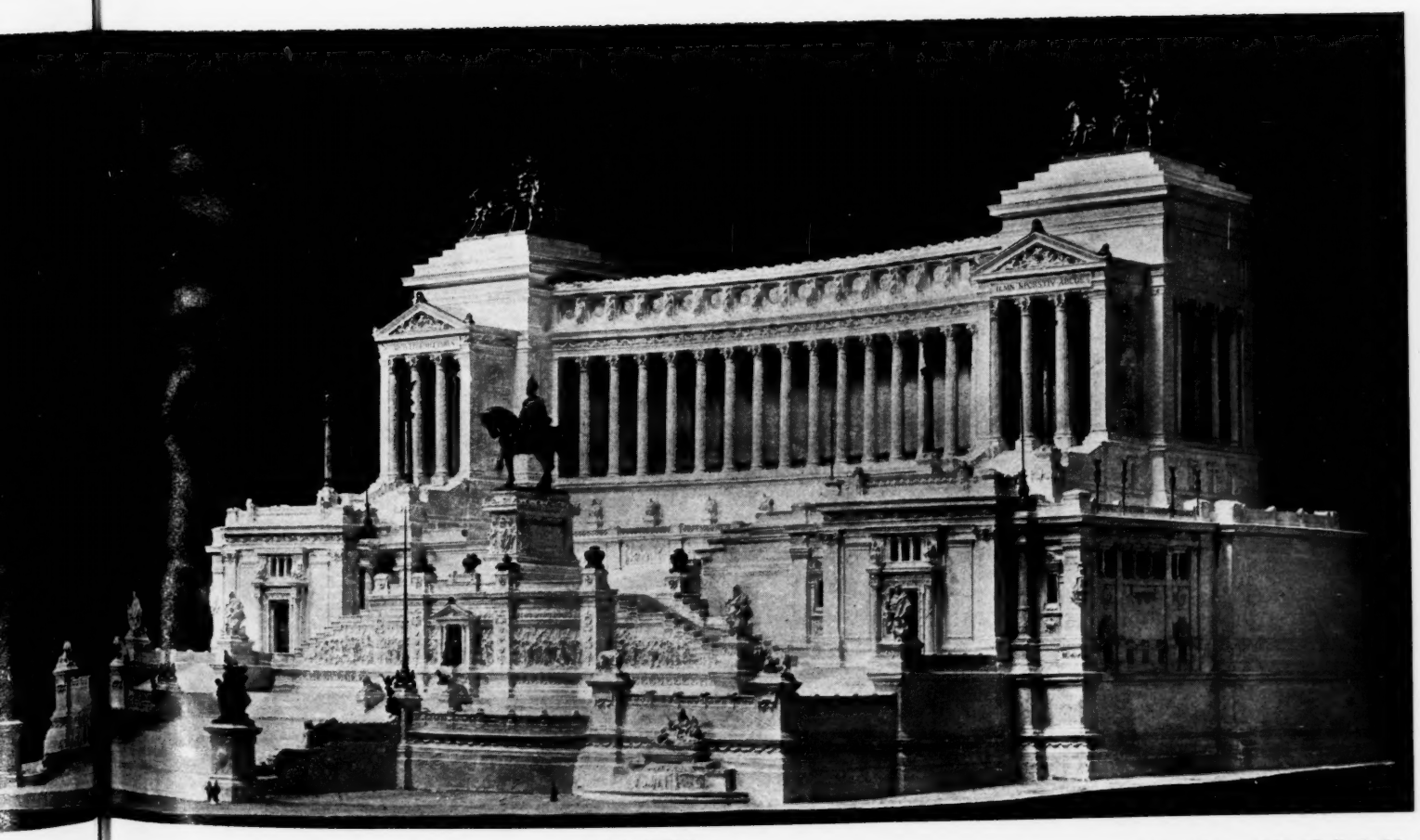
FRONT VIEW.

APPROACH FROM RIGHT SIDE.

MONUMENT TO VICTOR EMMANUEL, R



FRONT VIEW.



SIDE VIEW.

T TO VICTOR EMMANUEL, ROME.

Sprague & Co., Ltd., Printers, 4 & 5 East Harding St., E.C.